SUPPLEMENTARY SERVICE MANUAL

"Our company has passed the certification of ISO9001."

ATV250

SERVICE MANUAL

BRIEF INTRODUCTION TO FOUR-WHEELED CROSS-COUNTRY VEHICLE MODEL 250ATV

Four-wheeled cross -country vehicle, model 250ATV is a full road condition vehicle which can be driven on every kinds of road conditions such as sand beach, grassland, forest,village, construction site country road , This maintenance manual of four-wheeled vehicle model 250ATV (Hereafter called cross -country vehicle for short) compiled by Chongqing Industries Co., Ltd is specially provided for saler and technical staff of our Group. This manual mainly introduce the maintenance, removing and repairing method of cross-country vehicle and provide some relative technology and performance data. Because this manual can't collect the whole content of cross-country vehicle, it can only help maintainer of our group and it's saler have a basic understanding on working principle, maintenance procedure and repairing technology of cross-country vehicle. If you don't have this knowledge, when repairing cross-country vehicle, the condition of improper assembling and danger occurs after assembling are easily happened. Proper operation and maintenance are the advance of your safely driving cross-country vehicle, it also can reduce the troubles of cross-country vehicle and keep the best performance of it. The specification, performance and explanation stated in the manual are determined according to newly design of the vehicle, which are subject to changes without notce.

In this manual, for specially important requirement, the words of "Warning" "Caution" are labelled to prompt relative maintainer to abide it.

In the manual

Warning Show that if the content of "Warning "isn't obeyed, the driver, maintainer, checker will be heavily injuried, even dead.

Caution Show that you must be careful to prevent the vehicle from being damaged.

Maintenance manual of four-wheeled cross-country vehicle model 250ATV
First edition July 2003

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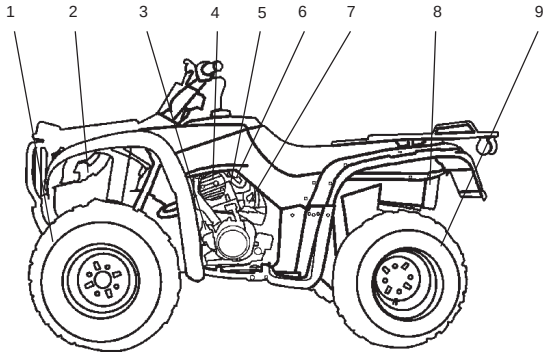
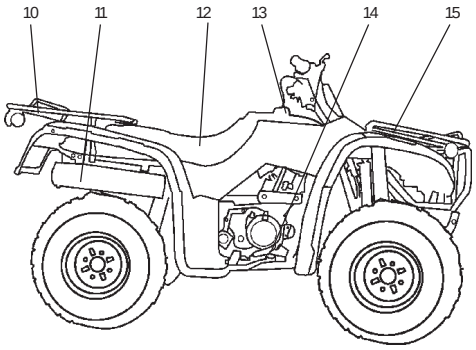
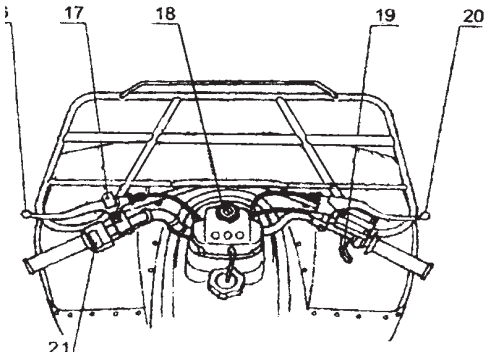
Chapter I General description

Section 1Description







1.Front wheel
2.Headlight
3.Steering lever
4.Shift pedal
5.Fuel cock
6.Hand-operated lever
7.Air chock
8.Tail light
9.Rear wheel
10.Rear luggage carrier
11.Exhaust silencer
12.Cushion
13.Fuel tank cover
14.Rear brake pedal
15.Front luggage carrier
16.Left lever of rear brake
17.Fixing clamp of rear brake
18.Main switch lock
19.Throttle grip
20.Right lever of front brake
21. Left switch unit

Caution:

The ATV you purchased maybe slightly differ from the pictures in the manual due to improvement or other changement.

Section 2 Special tools, instruments and meters

(I) Special tools

Special tools is the necessary tools used for accurately adjustment and assembly, it is helpful to prevent the maintenance defects and components damage caused by using improper tools.

1.Wrench for valve adjustment mainly used for adjusting valve clearance. Specification: 3mm 90890-01311

2.Puller for piston pin, mainly used of removing pistion pin.

3.Remover for rotator, mainly used for pulling magneto rotator form crank.

4. Clamp for rotator, mainly used for clamping magneto rotator when removing it to prevent it's rotation due to torque force.

5.Stop rotating meter for rotator, mainly used for removing and assembling rotator of kick starter.

6.Puller for crank, mainly used for disassembling crank from crankcase.

7.Puller for rocker shaft, mainly used for removing rocker shaft.

8.Compressing tools for spring of valve, mainly used for fixing and compressing spring when assembling valve lock clamp.

9. Assembling and disassembling tool for valve guide, mainly used for assembling and disassembling valve guide.

10.Assembling buffer, mainly used for assembling crank and balancing gear.

11.Hollow sleeve, mainly used for assembling crank and balancing gear.

12.Assembling toal for crank, mainly used for assembling crank and balancing gear.

13.Assembling and disassembling joint for universal coupling, mainly used for assembling and dismsembling universal coupling.

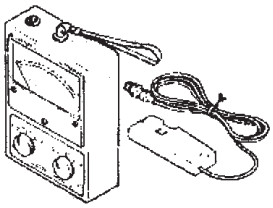
14.Assembling and disassembling disc, mainly used for assembling and disassembling reverse gear.

15.Fixed puller for gear, mainly used for assembling and disassembling gear.

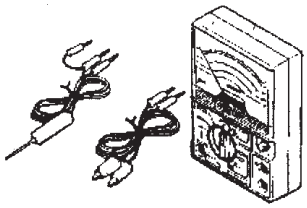
For the above tools, you can select with reference to special tools of the same type of vehicle.

(II) Instruments and meters

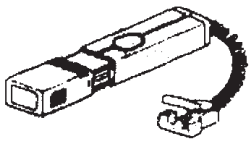
The following instruments and meters can be selected with reference to the same type of vehicle.



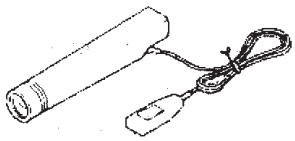
speedometer of engine
(90890-03113)



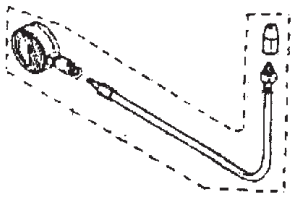
multimeter



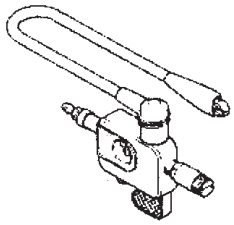
Ignition timing meter
(90890-03141)



spark tester of spark plug

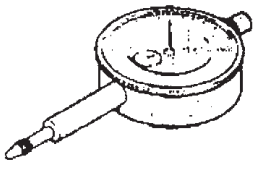


barometer



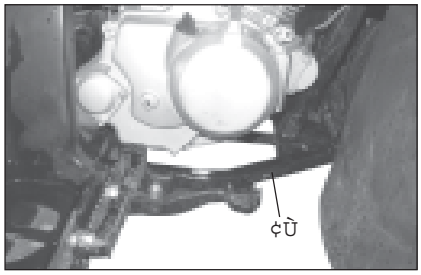
ignition checker

measuring tool of gasoling
(90890-01312)



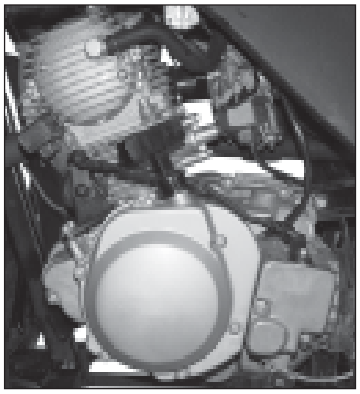
dial indicator

Section 3 Identification code, label of model and engine N0.



Identification code

It is engraved in the left or right side of front supporting main tube of engine of frame.



Engine N0.

It is engravd on the lug of top middle part of right crankcases of engine.

Section 4 Points for attention in maintenance

1.Preparation when disassembling

1.1 First clean the dirt, mud and attachment on the vehicle befor removing or disassembling.

1.2 Use proper special too cleaning device and means.

1.3 Keep all the components away from fire source. Pay attention to the safety, Don't be burned by the high temperation portion of engine, exhuaster and silencer etc. Be sure to take care of each other when operation with other people.

1.4 When disassembling the ATV, put the mated components, such as gear pairs, cylinder, piston and other "mated" components by normal running in together, When assembling or replacing these components, they should be in pairs.

1.5 When disassembling the engine, clean all the components and put in the tray in the order of disassembly, this in assembling, can not only increase the assembling speed, but also ensure the rightness of assembling.

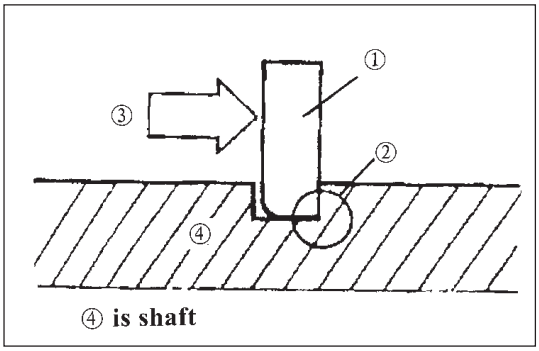
2.Replace the components

When replacing the components, be sure to use qualified products provided by use lubricants and grease which brank is assigned by lubricate.

3.Oil seal, shim, o-ring clip split pin, elastic washer.

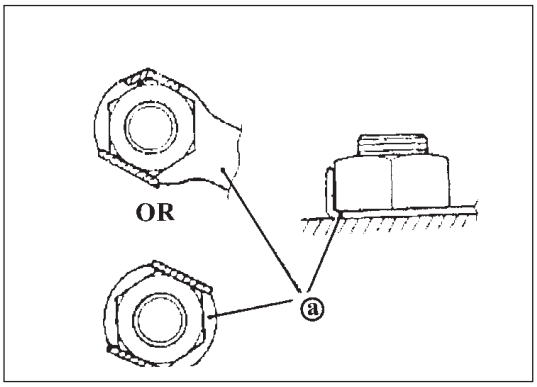
3.1 When disassembling to maintain the engine, in order to ensure that the reassembled engine have good sealing and connecting part is fixed and reliable, all the oil seal, shim, o-ring, clip, split pin and elastic washer should be replaced, be sure to keep lip of oil seal surface of shim and o-ring in cleaning condition.

3.2 When reassembling, apply lubricants to lubricate all the mated components and bearing, apply grease for oil seal.



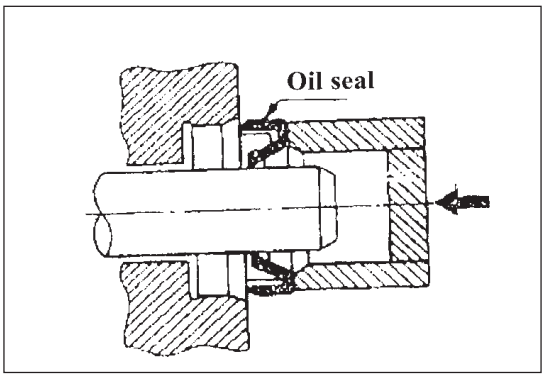
4. Clip

4.1Before assembling, be sure to check all the clips carefully.Use a new one after removing the clip of piston pin. When mounting clip ring ¢Ùmake the sharp face ¢Úon the opposite position of impacted face ¢Ûof clip.(see left fig)



5.Locking washer /shim and location pin

5.1When reassembling after disassembling. be sure to replace all the locking washer /shim and location pin @ After bolt or nut is fixed on the locking position. be sure to bend and fix both ends of locking shim along head of bolt or direction of nut.

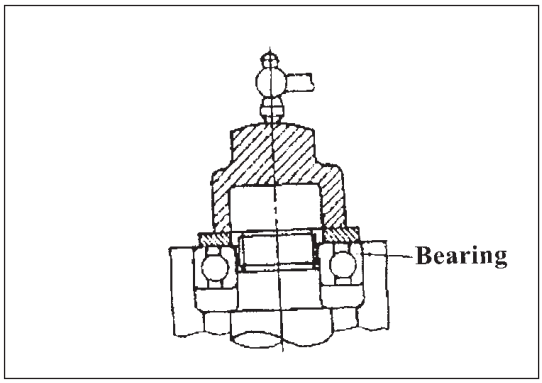


6.Bearing and oil seal

6.1 When assembling bearing and oil seal put the mark or specification of manufacturer outside, When assembling oil seal apply a thin film of lithium-base grease on the lip of oil seal.

Caution:

Don't blow to dry the inside of bearing with compressed air, this would damage the surface of bearing.



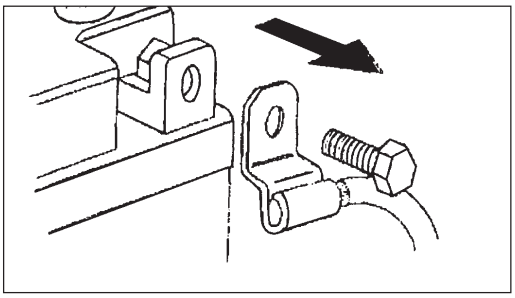


Fig.7.1Removal of negative pole wire of battery

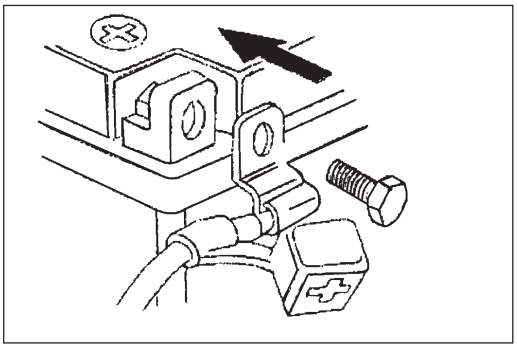


Fig.7.2 Connection of positive pole wire of battery

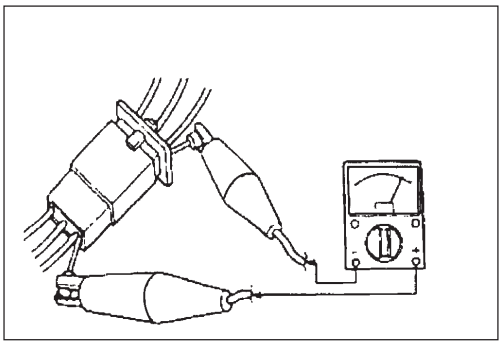


Fig.7.3

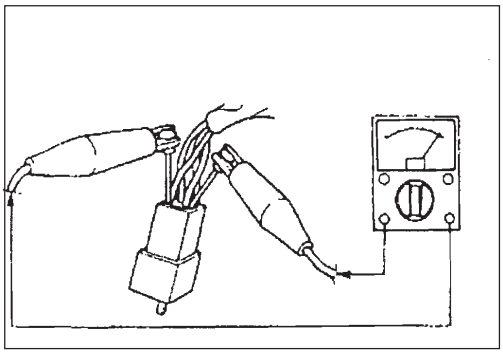


Fig.7.4

7.Check of electirc parts

7.1 Check the rust, dirt and moisture etc. of connector, if there is moisture, please blow it dry and clear the rust and dirt.

7.2 The eclectolyte inside the battery is a kind of corrosive, when operation exercise shall be taken not to let the electrolyte splash on the body.

7.3 When repairing wire on electric parts, first remove the wire on the termianl of negative pole of battery(see fig.7.1).When tightening or loosening bolt of terminal of big capacity battery, don't let the wrench contact with engine or other metal parts of vehicle body to avoid the electric shock.

7.4 When connecting the wire of battery, first connect the opositive pole wire of battery, then connect the negative pole wire After connecting the wire, apply clean grease on the terminal to avoid the increasing of resistance due to rust.

7.5 Check the terminal of connector

a Grip two terminals of connector together, check with the multimeter.(see fig.7.3,fig.7.4)

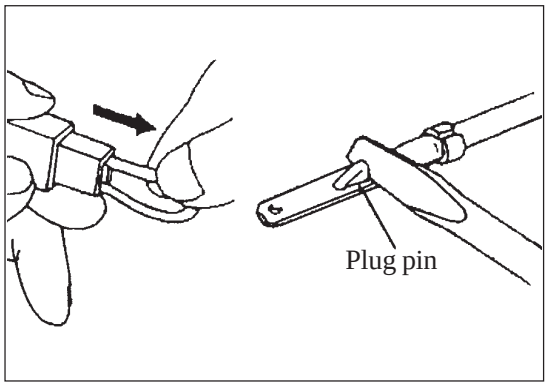


Fig.7.5

b. If joint is slack, bend the plug pin upward, then connect with connector plug(see fig7.5)

7.6 Before mounting new fuse, check if the load of fuse of components is right, especially for the portion being burned broken regularly, then mount the fuse having proper current value.

7.7Wire connector have two kinds, one is single-head connector, another is multi -head one.

Before connecting single-head connector , check if there is broken on the housing of joints, the joint is fixed and if there is a broken phenomenon on it. When inserting the joint, it should be fixed, then put in plastic coating after inserting.

In general, multi-head connector is plastic one, and locking catch is designed. When disassembling the connector, first open locking catch when connecting again, first check if all the joint is in good condition, if there is bent or twisted on them. After connecting, align the locking catch and lock them.

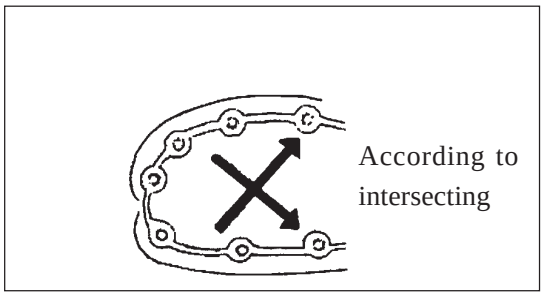


Fig.8.1Tightening method of screw and nut.

8. Use torque spanner to tighten screw and nut, and as per specified torque to tighten them. It should be tightened in steps from big ones to small ones, from inside to outside and along the direction of diagonal line to intersect. A s shown in fig.8.1.

Section 5 Specification

(I) How to use conversion table of unit

(1)How to use conversion table

All the specified documents in this manual are taken SI and Metric as unit. With the following conversion table, metric unit could be conversed into imperial unit.

METRIC	MULTIPLY	IMPERIAL
mm	0.03937	in
2mm ¡Ã	0.03937 =	0.08in

Conversion table

Conversio between metric and imperial			
	Known unit	Multiply	produst
Torque	m.kg m.kg cm.kg cm.kg	7.233 86.794 0.0723 0.8679	ft.lb in.lb ft.lb in.lb
Weight	kg g	2.205 0.03527	lb oz
Length	km/hr km m m cm mm	0.6214 0.6214 3.281 1.094 0.3937 0.3937	mph mi ft yd in in
Volume/capacity	cc(cm^3) cc(cm^3) lit(liter) lit(liter)	0.03527 0.06102 0.8799 0.2199	oz(IMP liq) cu.in qt(IMP liq) gal(IMP liq)
Others	kg/mm kg/cm^2 Centigrade	55.997 14.2234 9/5(¡æ)+32	1b/in psi(1b/in2) Fahrenheit(^0F)

(2)Definition of unit

Unit	Read	Definition	Measurement
mm cm	Millimetre Centimetre	10^{-3}Meter 10^{-3}Meter	Length Length
kg	Kilogram	10^3Gram	Weight
N	Newton	1 lilo ¡Ámeter /second	Force
Nm m.kg	Newton meter Meter kilogram	Newton ¡Ámeter Meter ¡Ákilo	Torque Torque
Pa N/mm	Pascal Newton per millimeter	Newton/$meter^2$ Newton/centimeter	Pressure Rigid of spring
L cm^3	Liter Cubic centimeter	———	Volume or capacity
r/min	Revolutions per minute	———	Rotational speed

II.Basic specification

Item	Specification
Dimension:	
Overall length	1940mm
Overall width	1050mm
Overal height	1160mm
Heigh of cushion	810mm
Axle base	1160mm
Front wheel distance	785mm
Rear wheel distance	770mm
Min.ground clearance	155mm
Min.turning radius	2900mm
Basic weight:	
Engine oil(with full tank)	230kg
Engine	Single-cylinder,air cooled four stroke
Displacement	229.6cmf
Cylinder bore×stroke	71×58mm
Compression ratio	8.7:1
Starting system	Electric starter or handoperated starter
Lubrication system	Pressure splash
Engine oil	SAE20W40,SAE10W30 SAE5W30
Classification of recommended engine oil	Model SE,SF,SG or above model
Periodic oil replacement	1.5L
Replace filter	1.6L
Overall capacity	1.8L
Oil capacity of gearbox	0.27L
Model:	SAE80API"GL-4"Gear oil of standard double curved face
Capacity of main fuel tank	12L,Non-lead gasoline No.90#
Capacity of reserved fuel tank	1.6L
Carburetor:	
Type	Vacuum film type
Type of spark plug	D7RTC
Clearance of spark plug	0.6-0.7mm
Type of clutch	Wet automatic centrifugal type
Output	
Primary reduction system	Gear driving
Reduction ratio	73/22(3.318)
Secondary reduction system	Axle driving
Reduction ratio	19/18×46/11(4.414)
Output type	[illegible]
Operation	Left-foot operation

Item	Specification
Shifting type	
1st speed	34/12(2.833)
2nd speed	34/19(1.789)
3rd speed	29/22(1.318)
4th speed	26/25(1.040)
5th speed	23/28(0.821)
Reverse gear	13/22×34/ 2×19/18×46/11(4[illegible])
Frame	
Bracket	Steel tube
Caster angle	13°
Toe-in of tire	0-5mm
Tire	AT23×7-10
Type	Vacuum
Specification of front wheel	AT22×7-10
Specification of rear wheel	AT22×10-10
Pressure of front wheel	20Kpa
Pressure of rear wheel	25Kpa
Brake:	
Type of front brake	Drum brake(full-closed type)
Operation type	Right-hand operation to brake
Type of rear brake	Drum brake(full closed type)
Operation type	Left-hand and right-foot to brake
Front suspension	Independent suspension device
Rear suspension	Rear centering shock absorbing type
Specification of shock absorber	
Front shock absorber	Spring/oil pressure shock absorbing
Rear shock absorber	Spring/oil pressure shock absorbing
Electric system:	
Ignition system	C-D-I
Magneto system	A.C magneto
Battery/capacity	Free of maintenance, 12N14-BS/12V,14AH
Headlight	12V,30W/30W×2
Taillight	12V,10W×1
Neutral indicator	12V,3W×1
Reverse indicator	12V,3W×1
High beam indicator	12V,3W×1

III.ATV body

Item		Standard	Limit
Steering system Type of steering bearing		Powder metallurgy sliding bearing	
Front wheel	Type	Spock rim, tubeless tire	
	Material of rim	Steel plate	
	Size of tire	AT 23 ¡Á7-10	
	Size of rim	AT 10 ¡Á5.5	
	Radial runout of rim		2.0mm
	Lateral swing of rim		2.0mm
Front brake	Type	Drum type	
	Inside diameter of brake drum	160mn	161mm
	Thickness of friction piece	4.0mm	2.0mm
	Free length of back spring of brake shoe	71.0mm	
Rear wheel	Type	Spoke rim, tubeless tire	
	Material of rim	Steel plate	
	Size of tire	AT 22 ¡Á10-10	
	Size of rim	AT 10 ¡Á8.0	
	Radial runout of rim		2.0mm
	Lateral swing of rim		2.0mm
Rear brake	Type	Drum type	
	Outside diameter of brake durm	160mm	161mm
	Thickness of friction piece	4.0mm	2.0mm
	Free length of back spring of brake shoe	71.0mm	
Brake lever and brake pedal	Free play of brake lever (left)	5-7mm	
	Free play of brake lever (right)	5-7mm	
	Free play of rear brake pedal	20-30mm	
Free play of throttle grip		3-5mm	

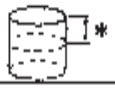
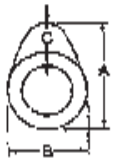
Item		Standard	Limit
Front suspen-sion system	Elastic coefficient of spring K1	10N/mm/0-117mm	
	Free length of suspending spring	293mm	
	Stoke of shock absorber	117mm	
	Pre-tension force of spring is adjsutable or not	Can't adjustable	
Rear suspen-sion system	Elastic coefficient K2	49N/mm/0-85mm	
	Free length of suspending spring	263mm	
	Assembling length	244mm	
	Stroke of shock absorber	85mm	
	Pre-tension force of spring is adjustabe of not	Adjustable	
Rear wheel fork	Assembling free play(left-end)		1.0mm
	Assembling free play (right-end)_		1.0mm

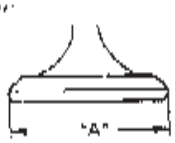
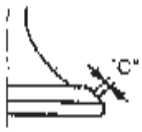
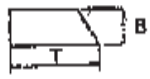
IV.Electric system

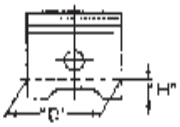
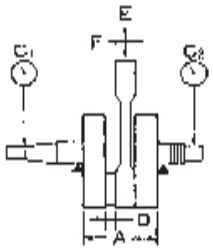
Item		Standard	Limit
Voltage of electric system		12V	
Spark plug	Type	D7RTC	
	Resistance	10 ¦ ¸	
	Clearance of spark plug	0.6-0.7mm	
Ignition coil	Resistance of primary coil	At 20 ¡æ(68°F),0.5-1.5 ¦ ¸	
	Resistance of secondary coil	At 20 ¡æ(68°F),4.6-7.6 ¦ ¸	
	Clearance of min. spark	6mm(0.24in)	
	Ignition timing (Before upper stop point)	10/2300r/min	
Ignition system	Advancing angle of ignition (Before upper stop point)	30/4300r/min	
	Type of ignition advance	Electric type	

Item			Standard	Limit
Magneto	Resistance of induction coil/colour		At 20¡æ(68°F),189-231¦¸ Blue black	
	Resistance of source coil /colour		At 20¡æ(68°F),470-530¦¸ Yellow/green-red	
	Type of C.D.I		Electric capacity contactless type	
Rectifier	No-loading adjusting volatage		14.1-14.9V	
	Voltage-resisting value		200V	
Charging system	Type		A.C magneto	
	Rated ouput voltage		At 2000r/min 14-15V	
	Coil resistance/colour		At 20¡æ(68°F),1.0-1.2¦¸ White -white	
Battery	Specific gravity		1.28	
	Type/capacity		12N14-BS/12V.14Ah	
Broken circuit of circuit system	Type		Fuse	
	Main fuse		20A	
	Resaved fuse		20A	
Belay of cut-off current	Coil resistance		At 20¡æ(68°F),72-88¦¸	
	Diode		Yes	
Electric starting system	Type		Constant mesh type	
	Starting motor	Output power	0.35KW	
		Resistance of armature coils	At 20¡æ(68°F),0.004-0.005¦¸	
Electric starting system	Starting relay	Ampere	100A	
		Coils resistance	At 20¡æ(68°F),4.8-5.3¦¸	

V.Maintenance specificationof engine

Item	Standard	Limit
Axle drive		
Meshing clearance of last end gear	0.1–0.2mm	
Meshing clearance of middle gear (forward)	0.1–0.2mm	
Meshing clearance of middle gear (backword)	0.10–0.25mm	
Lubrication system:		
Type of filtering oil	Wire filtering net	
Type of oil pump	Rotor type,pressure splash type lubrication	
Clearance of side	0.04–0.09mm	
Endface clearance"A"or"B"	0.15mm	0.09mm
Releasing pressure of safety valve	80–120Kpa	0.20mm
Cylinder  Bore size	70.97 -71.02mm (Distance between measuring point and upper endface of cylinder is 40mm)	71.10mm
Cylinder head		
Flatenss of lower endface	Measure the surface warp of every portion on the lower endface of cylinde head with rifle.	0.10mm
Timing chain		
Type of timing chain	Roller chain	
Tension type of timing chain	Free adjustment	
Pneumatic camshaft:		
Driving method	Chain driving (left)	
Roundness tolerance of camshaft		0.03mm
Outside diameter of camshaft	24.96–24.98mm	
Cam size		
 Exhaust: "A"	36.582–36.682mm	36.482
"B"	30.252–30.352mm	30.152
"C"	6.572–6.692mm	
Intake : "A"	36.537–36.637mm	36.437mm
"B"	30.131–30.231mm	30.031mm
"C"	6.527–6.647mm	
Rocker arm/Rocker arm shaft		
Outside diameter of shaft	11.981–11.991	
Inside diameter of rocker arm	12.000–12.018	
Clearance between arm and shaft	0.009–0.037	
Valve spring		
Inside spring		
Free length: intake/exhaust	35.5mm	
Setting length when valve is closed:intake/exhaust	30.5mm	
Compressing pressure when assembling:intake/exhaust	82.4–100.0N	
Limit value of squareness:intake/exhaust		2.5°/1.6mm
Twisting direction of spring (top view) :intake/exhaust	Counterclockwise	

Item	Standard	Limit value
Valve spring:		
Outside spring:		
Free length:intake/exhaust	37.2mm	
Setting length when valve is closed:	32.0mm	
Compressing pressure when assembling:intake/exhaust	162.8–200.1N	
Limit value of squareness:intake/exhaust		2.5°/1.6mm
Twisting direction of spring (top view) :intake/exhaust	Clockwise	
Valve,valve seat,valve guide		
Valve clearance (it s cold) :intake	0.05–0.09mm	
exhaust	0.11–0.15mm	
Size of valve:		
		
"A"diameter of valve head: exhaust	28.4–28.6mm	
intake	33.9–34.1mm	
"B"width of valve face: intake/exhaust	1.7–2.8mm	
"C"width of valve seat: intake/exhaust	0.9–1.1mm	1.6mm
"D"limit thickness: intake/exhaust	0.8–1.3mm	
Outside diameter of valve stem: exhaust	5.960–5.975mm	
intake	5.975–5.990mm	
Inside diameter of valve guide: intake/exhaust	6.000–6.012mm	0.10mm
Clearance between valve stem and guide:exhaust	0.025–0.052mm	0.08mm
intake	0.10–0.037mm	
Roundness of valve seem		0.03mm
Piston ring		
First ring		
Type	Bucket-shaped back round	
Size(B×T)	1.2×2.8mm	
Clearance of endface (on assembling)	0.15–0.30mm	0.4mm
Clearance of side (in assembling)	0.03–0.07mm	0.12mm
Second ring		
		
Type	Flat type	
Size(B×T)	1.2×2.8mm	
Clearance of endface (in assembling)	0.15–0.30mm	0.4mm
Clearance of side (in assembling)	0.02–0.06mm	0.12mm
Oil ring		
Size(B×T)	2.5×2.8mm	
Clearance of endface (in assembling)	0.2–0.7mm	

Item	Standard	Limit value
Piston  		
Piston size "D"	70.93–70.97mm	
Measuring point "H" (from bottom line of piston's lower portion)	4.0mm	
Piston offset	0.5mm	
Direction of piston offset	Inward	
Clearance between piston and Cylinder	0.01–0.06	0.15mm
Outside diameter of piston pin	15.991–16.000mm	
Inside diameter of pin hole	16.002–16.013mm	
Driving method of balancing block	Gear driving	
Connecting rod of crank  		
Limit value of runout: C1		0.03mm
C2		0.06mm
Width of crank "A"	55.95–56.00mm	
Small end free play of connecting rod "F"	0.8–1.0mm	2.0mm
Big end free play of connecting rod "D"	0.35–0.65mm	
Big end radial clearance of connecting rod "E"	0.010–0.025mm	
Automatic centrifugal clutch		
Clutch shoe: quantity	3 pieces	
thickness	2.0mm	1.5mm
Clutch meshing revolution	1800–2100r/min	
Clutch stalled revolution	3200–3600r/min	
Free length of back spring of brake shoe	32.47mm	
Clutch:		
Action method of clutch	Outside pushing type	
Clutch piece: quantity	4 pieces	
thickness	1.45–1.75mm	
Friction piece: quantity	5 pieces	
thickness	2.94–3.06mm	2.8mm
Spring of clutch: quantity	4	
free length	35.1mm	32.9mm
Shifting mechanism		
Shifting method	Shift gear cam drum	
Bending limit of fork guide	and fork	0.8mm
Transmission device		
Offset limit of spindle		0.08mm
Offset limit of transmission output shaft		0.08mm

Section 6 Wiring diagram of ATV

(I)Thechnical explanation and requirement, details of relative compenent.

1.Technical explanation

[A] Main switch wire, indicator wire, mileage meter wire (mounting digital mileage meter) must be put throught the guide grip of holding seat of steering bar. (see fig.1)

[B] Rear brake vent-pipe, carburetor vent-pipe and vent-pipe of rear driving gearbox must be inserted into the hole of supporting pad of vent-pipe.(see fig.1, also see view D)

[C] Neutral and reverse switch wire, mileage meter wire(mounting with digital mileage meter) should be fixed with bands here.(see fig.1)

[D] After putting overflowing pipe of carburetor through two rear fixing part of engine (on thge frame), then put it in the proper position between engine and rear arm. Note: Overflowing pipe be unblocked.(see fig.1)

[S] After putting rear brake cable, throttle cable, wire of starting motor and mileage meter (mounting with digital mileage meter)through wire hook2, wire hook 2should be bent according to the method of view A.

[P] In this position, starting motor wire and mileage meter wire(mounting with digital mileage meter)must be put throughh the hole of plastic grip in the fuel tank support of frame..(see view B-B)

[R] In here, rear brake cable, rear brake vent-pipe and mileage wire(mountig with digital mileage meter)must be first put through wire hook 2, then connect with respective matching unit.(see fig. B-B)

[Q] In here, wire of reverse switch neutral switch, and mileage meter (mounting with digital mileage meter)must be fixed with bands.(see fig.B-B)

[T] When assembling the wire of ser. No. 14 and No.15.don't need to put through the guide clip of holdig seat of steering bar.(see fig.E-E)

[W] After putting the vent-pipe of tank through the hole of main switch, lead it to the lower of right side of steering bar, then put it through the wire hook on the frame.

Note: Hose must be unblocked.(see fig. E-E)

[V] The leading wire on the switch units of steering bar, must be bound with band,(see fig. G-G)

[E] After the vent-pipe of front brake is put through plastic clip hole on the frame, surplus portion should be put in the proper position of frame.(see fig.2)

[G] After the vent-pipe of battery is checked and no twist is found here, then insert it in the presetting hole of rear fedner.(If free of maintenance battery is used, then this item of requirement doesn't need.)(see fig.3)

[H] Wire of rear brake cable, rear brake vent-pipe and mileage meter(mounting with digital mileage meter)should be put through the cable frame welded on the frame in here.(see fig.3)

[F] In here, wire of starting motor must be first put through the plastic clip on the frame, then connect with the matching units. (see fig.3)

[L] Vent-pipe of battery should be put through the plastic clip fixed on the frame.(see fig..)(If free of maintenance battery is used, then this item of requirement doesn't need.)

[K] In here, wire of throttle cable, rear brake cable and mileage meter(mounting with digital mileage meter)should be put through the cable guide frame welded on the frame.(Throttel cable

should be mounted on the inner side of guide frame direction).(see fig.4)

J Insert the starting relay into the inserter preset by the rear fender, the direction should be ensured the convenience of inserting.(see fig.4)

M After putting the vent pipe of battery through the plastic clip mounted on the rear fender, instert it into the hole preset by the rear fender, (Combine with G)(see fig.4)(If free of maintenance battery is used. then this item of requirement doesn't need).

U When assembling, mounting supporting pad of vent-pinpe shouldn't be leaked, and pay attention to let the direction of mark upward. (see view D)

N In here, the wire of taillight must be put through the slot hole preset by tool kit from the bottom of tool kit.(see view F)

2.Technical requirement

¢ÙIn the drawing, the wiring condition and position for all kinds of wires on the ATV body is marked. When assembling the finished ATV, wiring should be done as per the drawing in principle.

¢ÚFor the wiring and fixing method which can't be marked in the drawing , necessary technical explanation has been made, you should abide to execute in assembling.

¢ÛFor the place of using plastic clip stipulated in the drawing, if can't be used temporarily, you can use band to fix it.

¢ÜThe dimension in the drawing is only used for reference in operation, while not be used as checking data. In the details of marking the code No. of component, the self-carrying component (wire etc.)of units only be marked with name.

3.Details of relative component

Ser.No.	Code	Name	Q'ty	Remark
33	SSA0-000512-0	Wire clip 4	3	
32	SSA0-000511-0	Wire clip 3	2	
31	SSA0-000510-0	Wire clip 2	3	
30	SSA0-000509-0	Wire clip 1	2	
29	150.00-0.39	Cable band	6	
28	150.00-03	band of steering bar	2	
27		C.D.I magneto wire	1	
26	150.00-06	Vent-pipe of carburetor	1	
25	FG-802000-0	Cut-off relay	1	
24	SSA5-320000-0	Starting relay	1	
23	SSA0-000516-0	Cable	1	
22		Ven-pipe of rear brake	1	
21		Wire of starting motor	1	
20		High voltage coils and wire	1	
19	SSA0-000515-0	Vent-pipe of battery	1	
18	SSA4-230000-0	Vent-pipe of front	1	
17		Wire of headlight	1	
16	SSA4-230000-0	Rear brake cable	1	
15		Wire of handle bar switch	1	
14		Wire of clutch wire	1	
13	SSA4-210000-0	Throttle cable	1	
12	SSA4-220000-0	Front brake cable units	1	
11		Wire of mileage meter	1	
10		Wire of neutral switch	1	
9		Wire of reverse witch	1	
8		Overflowig hose of carburetor	1	
7	SSA0-000517-0	Vent-pipe of garbox	1	
6	SS45-630000-0	Taillight unit	1	
5	FG-803000-0	C.D.I	1	
4	FG-805000-0	Rectifier	1	
3		Vent-pipe of gearbox	1	
2	SSA5-510000-0	Main swtich lock	1	
1	SSA0-012000-0	Wire clip unit	1	

(II)Wiring diagram(1)

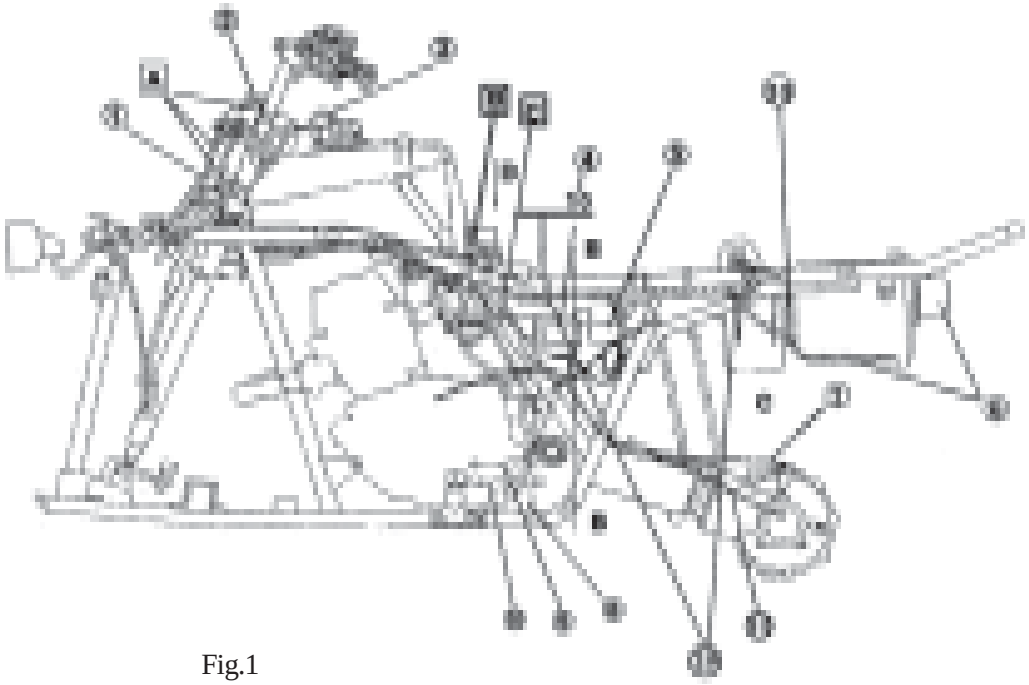


Fig.1

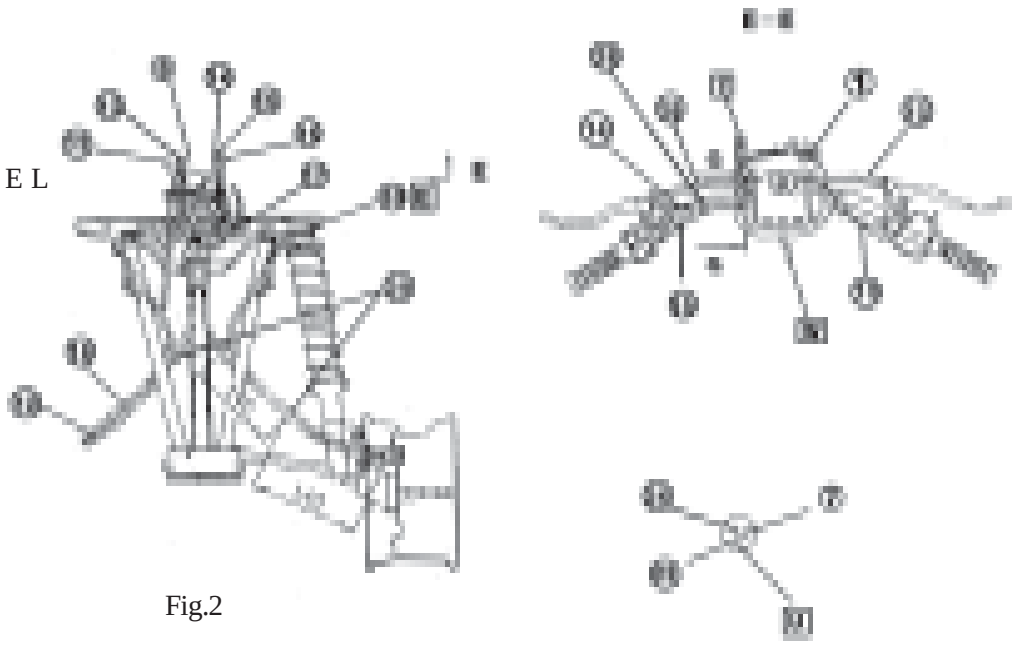


Fig.2

(III)Wiring diagram(2)

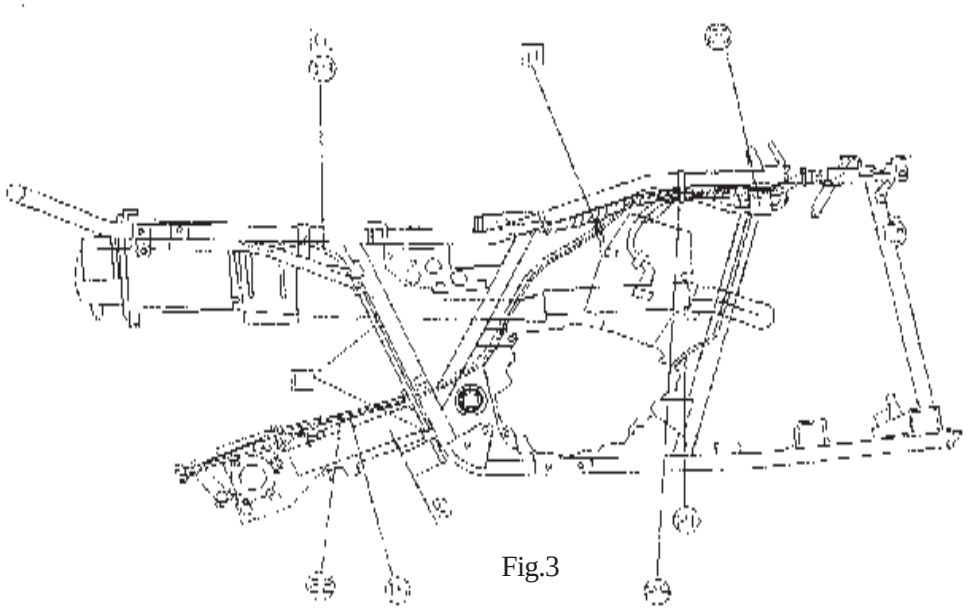


Fig.3

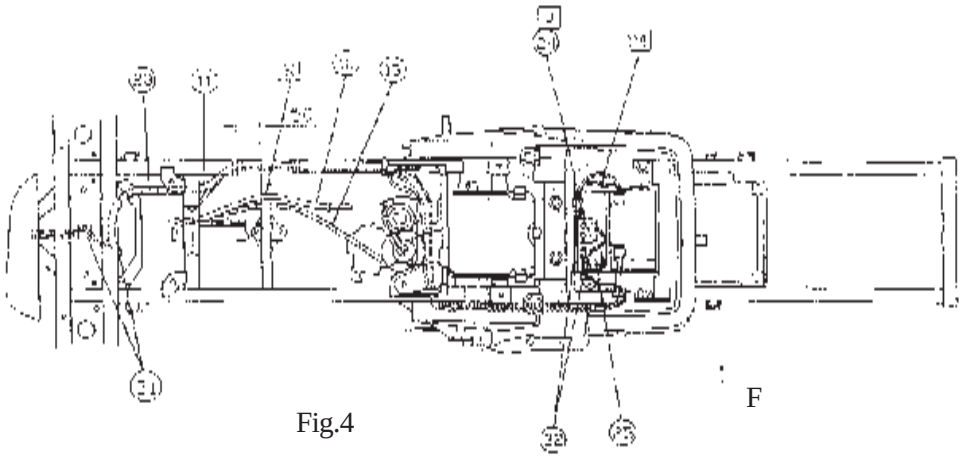


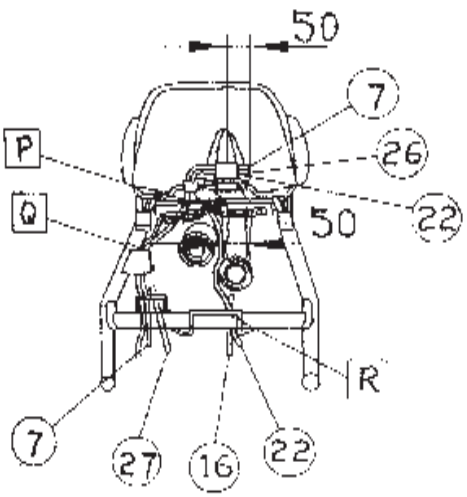
Fig.4

F

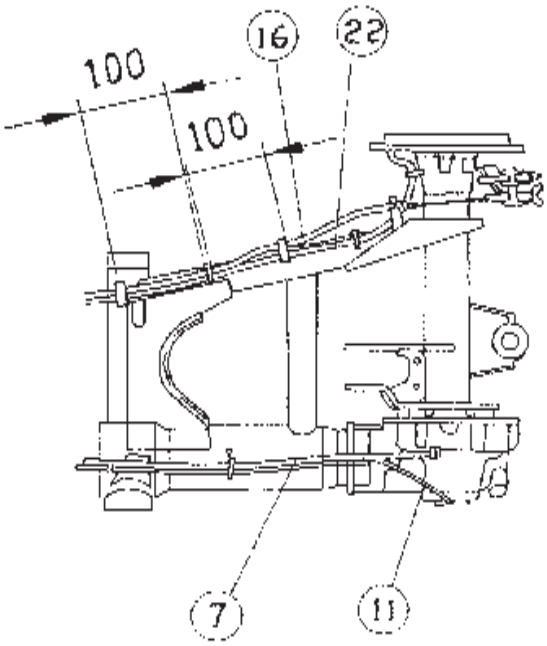
View F

(IV)Wiring diagram(3)

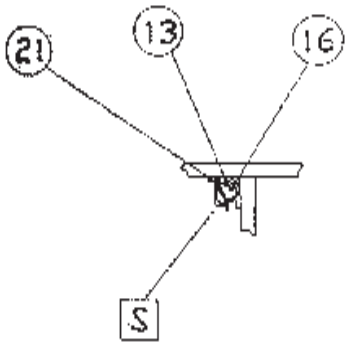
B-B



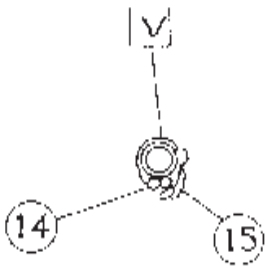
View C



View A



G-G



Section 7 Requirements for torque of fastener

(I)ATV body

Torque value of fastener							
Locking component and location of ATV body	Name of component	Size of thread	Q'ty	Tightening torque of fastener of ATV body			Remark
				Nm	m.kg	ft.lb	
Front wheel rim and front brake hub	Nut	M10 ¡Á1.25	8	55	5.5	40	
Front brake hub and steering vertical post units	Nut	M12 ¡Á1.25	2	25	2.5	18	
Fornt brake cam arm and cam shaft	Nut	M6 ¡Á30	2	9	0.9	6.5	
Front brake and front shock absorber	Bolt	M12 ¡Á50	4	78	7.8	56	
Front shock absorber and frame	Nut	M35 ¡Á1.5	2	55	5.5	40	
Steering vertical post and pulling rod	Nut	M12 ¡Á1.25	2	25	2.5	18	
pulling rod and nut	Nut	M12 ¡Á1.25	4	30	3	22	
Steering vertical post and pulling rod	Nut	M12 ¡Á1.25	2	25	2.5	18	
Steerig vertical post(lower)and frame	Nut	M10	1	30	3	22	
Holding seat of steering vertical post and frame	Bolt	M8 ¡Á60	2	23	2.3	17	
Steerig vertical post and upper & lower holding seat of steerig bar	Bolt	M8 ¡Á50	4	20	2	14	
Front wheel fork and frame	Bolt	M10 ¡Á70	4	45	4.5	32	
Front wheel fork and brake	Nut	M12 ¡Á1.25	2	25	2.5	18	
Engine upper connection plate unit and frame(upper)	Bolt	M8 ¡Á6	2	33	3.3	24	
Engine assy and engine upper connecting plate unit	Bolt	M8 ¡Á55	1	33	3.3	24	
Engine assy and frame(front)	Bolt	M8 ¡Á105	1	48	4.8	35	
Engine assy and frame(rear upper)	Bolt	M8 ¡Á105	1	33	3.3	24	
Engine assy and frame(rear lower)	Bolt	M6 ¡Á16	1	33	3.3	24	
Front fender and frame	Bolt	M6 ¡Á16	2	7	0.7	5.1	
Front fender flap and front fender supporting rod	Screw	M6 ¡Á16	2	7	0.7	5.1	
Bumper and frame	Bolt	M8 ¡Á16	4	11	1.1	8	
Front luggage carrier and bumper	Bolt	M6 ¡Á16	2	11	1.1	8	
Front luggage carrier and frame	Bolt	M8 ¡Á16	2	34	3.4	25	
Front fender and front luggage carrier	Bolt	M6 ¡Á20	2	7	0.7	5.1	
Rear fender and frame	Bolt	M6 ¡Á16	2	7	0.7	5.1	
Rear luggage carrier and frame	Nut	M6 ¡Á40	2	7	0.7	5.1	

Locking component and location of ATV body	Name of component	Size of thread	Q'ty	Tightening torque of fastener of ATV body			Remark
				Nm	m.kg	ft.lb	
	Bolt	M8 ¡Á16	2	34	3.4	25	
Rear fender and rear luggage carrier	Bolt	M6 ¡Á20	2	7	0.7	5.1	
Left&right foot rest and frame	Bolt	M10 ¡Á22	4	65	6.5	47	
Left&right foot rest and frame	Bolt	M8 ¡Á16	2	30	3	22	
Supporting weldment in foot rest and bracket weldment	Bolt	M8 ¡Á16	4	30	3	22	
Rear rim and hub	Nut	M10 ¡Á1.25	8	55	5.5	40	
Rear wheel axle and nut	Nut	M16	2	150	15	110	
Rear brake cam arm and cam shaft	Nut	M6 ¡Á30	1	9	0.9	6.5	
Rear brake shoe and rear axle housing	Bolt	M8 ¡Á1.25	4	28	2.8	20	
Rear wheel fork and frame(left)	Bolt	M22 ¡Á1.25	1	130	13	94	
Rear wheel fork and frame(right)	Bolt	M22 ¡Á1.5	1	6	0.6	4.3	
Rear arm shaft and nut(right)	Nut	M22 ¡Á1.5	1	130	13	94	
Rear wheel fork unit and rear driving gearbox units	Nut	M22 ¡Á1.5	4	55	5.5	40	
Rear wheel axle bushing and driving gearbox units	Bolt	M12 ¡Á1.25 ¡Á25	4	55	5.5	40	
Rear shock absorber(upper)and frame	Bolt	M12 ¡Á75	1	50	5	36	
Lower cover of gearbox	Bolt	M8 ¡Á12	2	17	1.7	12	
Rear wheel axle bushing and rear wheel fork init	Bolt	M12 ¡Á1.25 ¡Á25	4	103	10.3	74	
Fuel tank and frmae	Bolt	M6 ¡Á35	2	10	1	7.2	
Oil draining bolt of rear driving gearbox	Bolt	M12 ¡Á1.25	1	23	2.3	17	
Oiling bolt of rear driving gearbox	Bolt	M12 ¡Á1.25	1	23	2.3	17	

(II) Engine

Torque value of fastener							
Locking component and location of ATV body	Name of component	Size of thread	Q'ty	Tightening torque of fastener of ATV body			Remark
				Nm	m.kg	ft.lb	
Observing screw hole of cylinder head	Cap shaped nut	M6	1	7	0.7	5.1	
Cylinder head	Flange bolt	M8	4	22	2.2	16	Apply oil to washer
Cylinder head and cylinder	Bolt	M8	2	22	2.2	16	
Sprocket cover	Screw	M6	2	7	0.7	5.1	
Valve cover	Bolt	M6	5	10	1	7.2	
Bearing stop plate of camshaft	Bolt	M6	2	8	0.8	5.8	Apply oil to washer
Spark plug	Nut	M12	1	17.5	1.75	12.5	
Cylinder	Bolt	M6	2	10	1	7.2	
Balancing shaft gear	Nut	M14 ¡Á1.0	1	50	5	36	Apply oil to washer
Starting ratchet disc	Bolt	M10 ¡Á1.25	1	50	5	36	
Locking nut(adjusting screw of valve clearance)	Nut	M6	2	14	1.4	10	
Cam timing sprocket	Bolt	M10	1	60	6	43	
Chain tensioner	Bolt	M6	2	10	1	7.2	
Chain tensioner cover	Bolt	M6	1	7	0.7	5.1	
Upper guide plate of chain	Bolt	M6	2	8	0.8	5.8	
Oil pump	Screw	M6	3	7	0.7	5.1	
Oil draining screw plug	Plug	M35	1	43	4.3	31	
Fine filter cover of engine oil(drainingoil)	Bolt	M6	1	10	1	7.2	
Fine filter cover of engine oil	Bolt	M6	2	10	1	7.2	
Carburetor seat and cylinder head	Bolt	M6	2	12	1.2	8.7	Twist with cable guide part
Carburetor and carburetor seat	Bolt	M6	2	12	1.2	8.7	
Carburetor and carbuetor connecting pipe	Hose clip	M5	1	2	0.2	1.4	
Air filter box and carburetor connecting pipe	Hose clip	M5	1	2	0.2	1.4	
Air filter box and intake pipe	Hose clip	M5	1	2	0.2	1.4	
Silencer and frame	Bolt	M8	2	34	3.4	25	
Silencer and exhaust pipe	Bolt	M8	1	20	2	1.4	

Locking component and location of ATV body	Name of component	Size of thread	Q'ty	Tightening torque of fastener of ATV body			Remark
				Nm	m.kg	ft.lb	
Exhaust pipe	Bolt	M6	2	1	1	7.2	
Crankcase(closing case)	Screw	M6	11	7	0.7	5.1	
Left side cover	Screw	M6	6	7	0.7	5.1	
Left crankcase cover	Screw	M6	8	7	0.7	5.1	
Right crankcase cover	Screw	M6	9	7	0.7	5.1	
Bearing clamp of right crankcase cover	Screw	M6	3	7	0.7	5.1	Apply tightening agent
Bearing clamp of left crankcase cover	Screw	M5	3	7	0.7	5.1	Apply tightening agent
Right connecting box	Screw	M6	3	7	0.7	5.1	
Main clutch	Nut	M22	1	78	7.8	56	Use locking washer
Assistant clutch spring	Bolt	M5	4	6	0.6	4.3	
Assistant clutch hub	Nut	M14	1	50	5	36	Use locking washer
Shift cam star-shaped gear	Screw	M6	1	12	1.2	8.7	Apply tightening agent
Locking nut (clutch releasig adjsutable screw)	Nut	M8	1	15	1.5	11	
Starting surpassig clutch	Bolt	M8	3	30	3	22	Apply tightening agent, rivent to prevent loosen
Connecting plate of starting motor	Screw	M16	2	7	0.7	5.1	
Output	Nut	M16	1	60	6	43	Rivel to prevent loosen
Left case bearing clamp of driving shaft	Screw	M8	3	25	2.5	18	Apply tightening agent
Rear cover bearing	Inner-hexagoral screw sleeve		1	50	5	36	Apply tightening agent
Rear cover bearing	Inner-hexagoral screw sleeve		1	50	5	36	
Reverse gear	Special-shaped nut(L.H)		1	50	5	36	Apply tightening agent
Rear cover	Bolt	M8	4	23	2.3	17	
Front joint	Nut	M12	1	60	6	43	Apply tightening agent
Reverse gear lever unit	Bolt	M6	2	12	1.2	8.7	
Reverse gear lever unit	Bolt	M14	1	15	1.5	11	
Locking nut of length adjuster of connecting rod (Reverse gear operation bar assy)	Nut	M8	1	15	1.5	11	
Locking nut of length adjuster of connecting rod (Reverse gear operation bar assy)	Nut	M8	1	15	1.5	11	
Reverse gear operation rod and reverse gear lever mechanism	Flange nut	M6	1	10	1	7.2	

Locking component and location of ATV body	Name of component	Size of thread	Q'ty	Tightening torque of fastener of ATV body			Remark
				Nm	m.kg	ft.lb	
Shift pedal	Bolt	M6	1	10	1.0	7.2	
Magneto stator	Screw	M6	3	7	0.7	5.1	
Neutral switch		M12	1	20	2.0	14	
Reverse gear switch		M12	1	20	2.0	14	
Hand-started driving disc	Screw pin	M6	1	12	1.2	8.7	

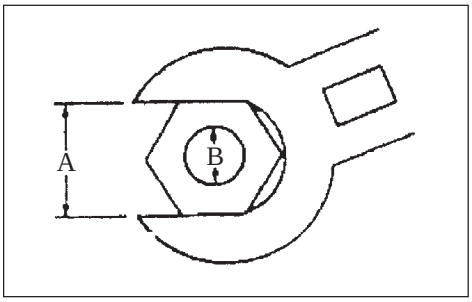
(III) General torque specification

General torque specification (standard screw)

This table is screw locking specification drawn up by International Standard Association.

In order to avoid the twist or unbalancing phenomenon when locking screw. please cross lock or londuit as per appointed orders.

*When measuring torque force, standard torque force testing spanner must be used.



A.Size of nut

B. Size of thread

A (Nut)	B (Screw)	Specification of general lorque m.kg
10mm	6mm	0.6
12mm	8mm	1.5
14mm	10mm	3.0
17mm	12mm	5.5
19mm	14mm	8.5
22mm	16mm	13.0

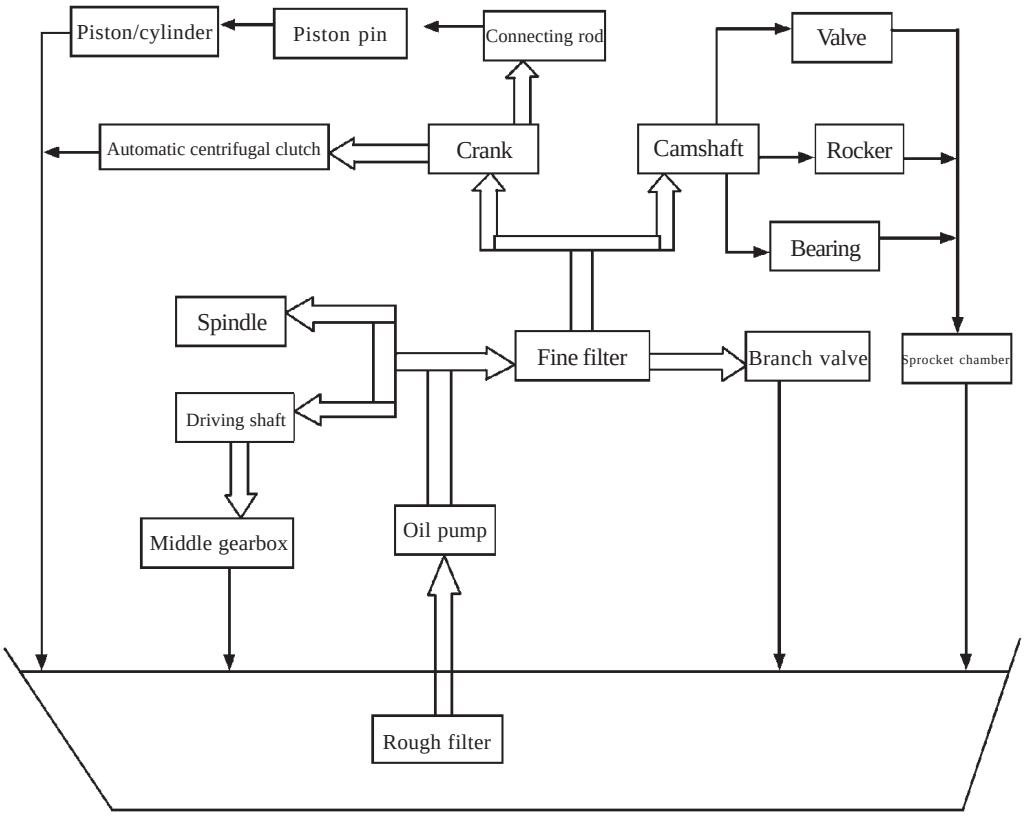
Section 8 Lubrication

Standard	Item

(I) Lubrication oil way

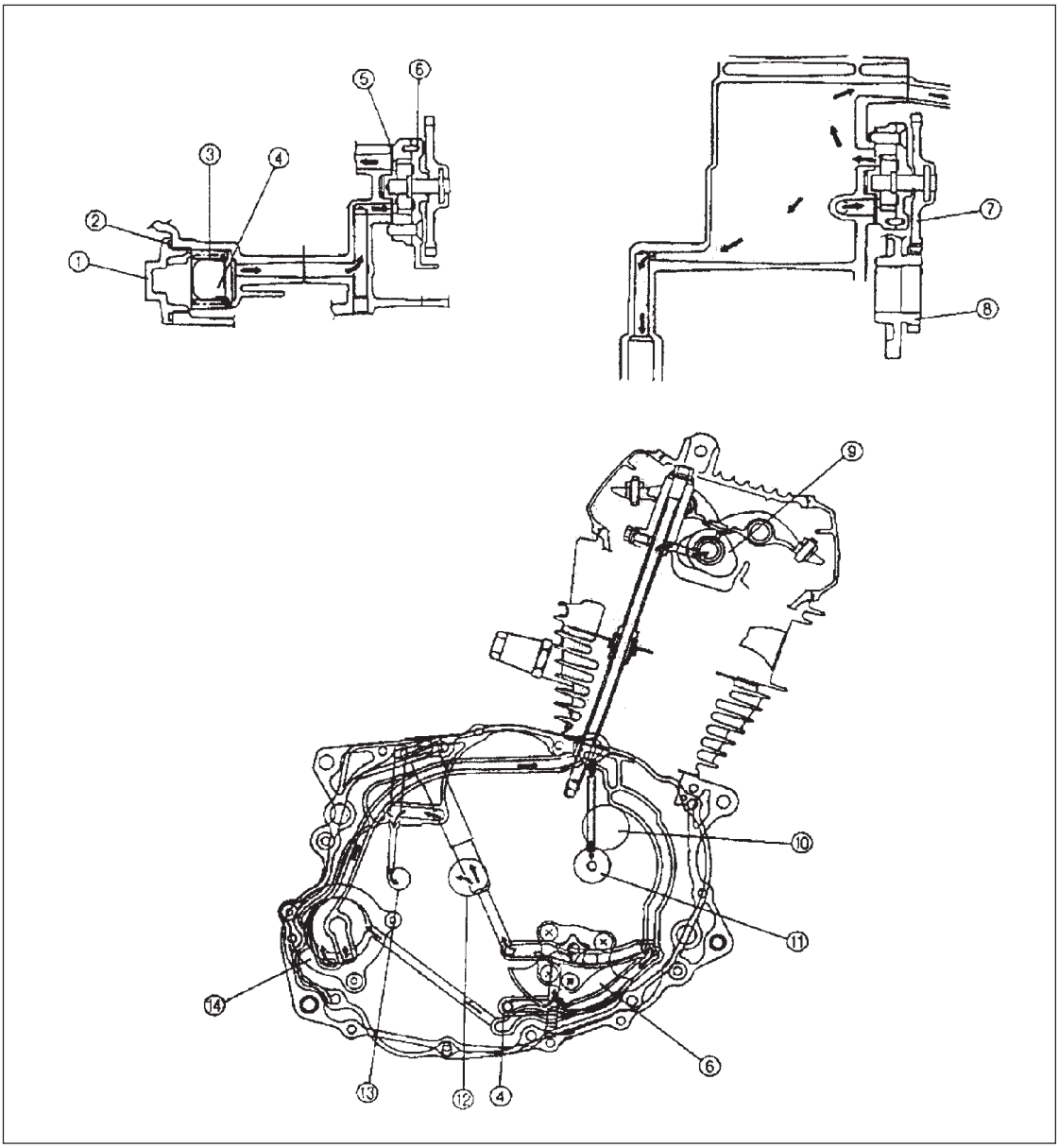
:Pressure

:Splashing oil

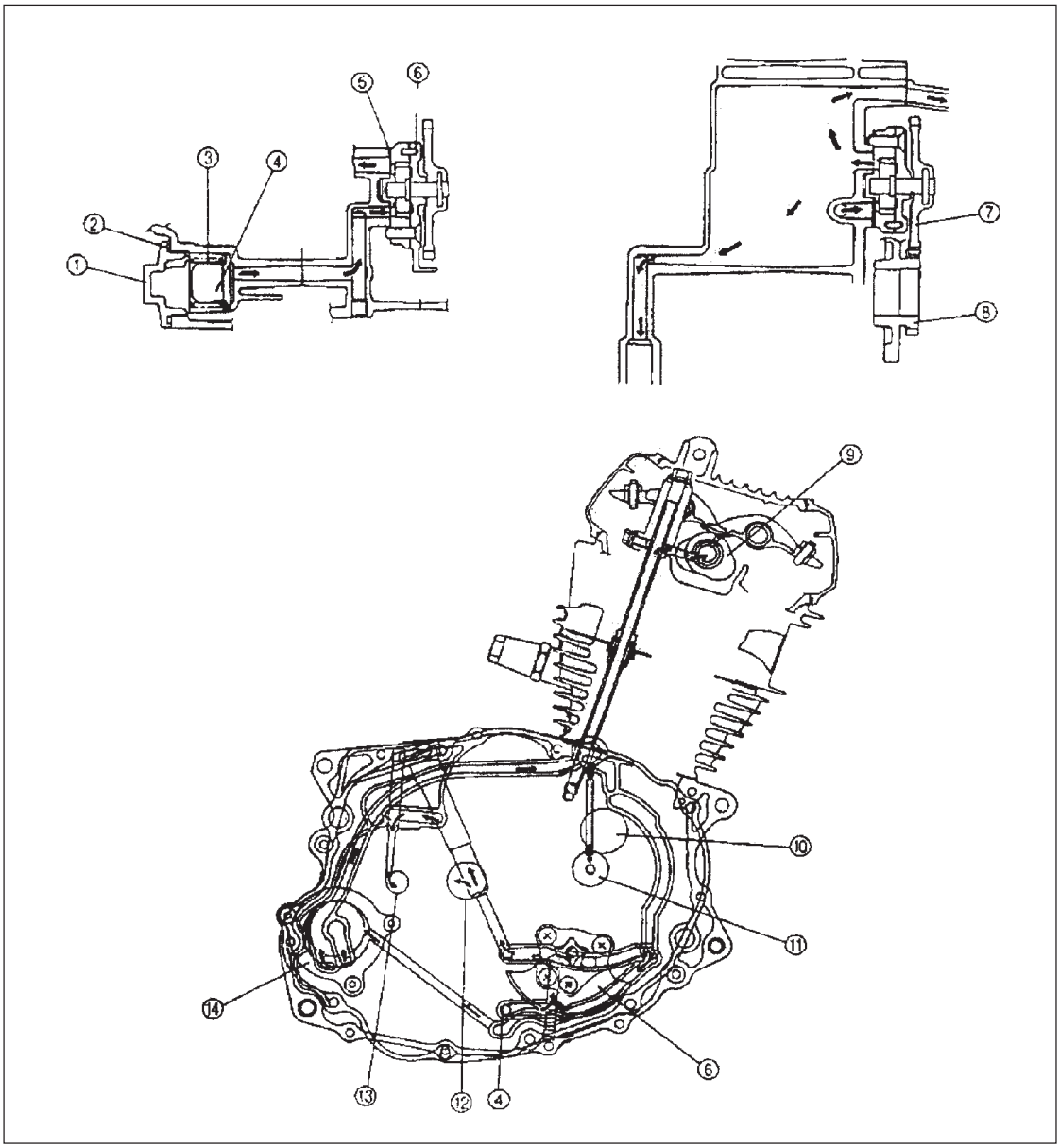


(II) Lubrication diagram

1. Oil draining plug
2. O-ring
3. Compressing spring
4. Rough filter
5. Oil pump washer
6. Oil pump assy
7. Oil pump driven gear
8. Oil pump driving gear
9. Camshaft
10. Crankcase
11. Crank
12. Spindle
13. Driving shaft
14. Fine filter



1. Single-direction valve
2. Engine oil fine filter
3. Engine oil filter cover
4. O-ring
5. Clip
6. camshaft
7. Rocker
8. Single-direction bearing(automatic centrifugal clutch)
9. Crank pin
10. Crank pin
11. Spindel
12. Driving shaft



Section 9 Lubrication point and type of lubricants

(I)Lubrication point and type of lubricants(ATV body)

Lubrication point		Type of lubricants
Lip of oil seal (full)		Light lithium-base grease
O-ring (full)		Light lithium-base grease
Steering shaft(upper end,lower end)		Light lithium-base grease
Ball connection of steering pushing rod		Light lithium-base grease
Front wheel fork (ball-shaped joint)		Light lithium-base grease
Front wheel bearing		Grease used for bearing
Front & rear brake	Braking camshaft Rotating pin seat Lip of oil seal	Light lithium-base grease
Dust-proof ring of brake		Light lithium-base grease
Joint of front brake cable		Light lithium-base grease
Front brake lever axle and rear brake lever axle		Light lithium-base grease
Adjusting nut and pin of front brake cable		Light lithium-base grease
Adjusting nut and pin of rear brake cable		Light lithium-base grease
Rear brake pedal pivot and brake pedal axle hole		Light lithium-base grease
Throttle rotating frame shaft and end section of throttle cable		Light lithium-base grease
Reverse gear lever pivot		Light lithium-base grease
Connection bolt of rear wheel fork and frame,rear wheel fork bearing		Light lithium-base grease
Rubber sleeve and rear wheel fork		Seal gum
Rear shock absorber bushing		Light lithium-base grease

(II)Lubrication point and type of lubricants(Engine)

Lubrication point(name of component)		Type of lubricant
Lip of oil seal	(Crank,shift gear shaft,spindle,shift gear operation shaft)	Light lithium-base grease
All bearing	(Crank spindle, driving shaft, output shaft, balancing shaft,shift gear camshaft, pneumatic canshaft)	Lubricating-oil
O-ring	(Contact position of o-ring)	Light lithium-base grease
Stem end of intake and exhaust valve	(Intake and exhaust valve, vale adjsuting screw)	Lubricating-oil
Fastener of cylinder head	(Bolt flange face,thread portion,washer endface)	Lubricating-oil
Outside surface of piston pin	(Piston piston pin,small connecting rod)	Lubricating-oil
Outside surface of piston.piston ring	(Cylinder block ,piston, piston ring)	Lubricating-oil
Inner hole of main driving gear of main clutch	(Crank main drivinggear)	Lubricating-oil
Inner hole of assistant clutch gear unit	(Assistant clutch gear unit,spindle)	Lubricating-oil
Assistant clutch releasing operation rocker unit	(Operation rocker and it's contact portion)	Lubricating-oil
Upper cam plate guide rod	(Upper cam plate unit guide rod)	Lubricating-oil
Inner hole of upper cam plate unit	(Shift gear shaft, upper cam plate unit)	Lubricating-oil
Steel ball bracket unit	(Steel ball brakcket unit, upper&lowr cam plate)	Lubricating-oil
Surpassing clutch	(Surpassing clutch ,main clutch cover,inner spline)	Lubricating-oil
Outside surface of reverse gear controlling rod	(Reverse gear controlling rod,rear transmission)	Lubricating-oil
Outside surface of reverse grea fork shaft	(Reverse gear fork shaft, reverse gear fork ,steel ball)	Lubricating-oil
Spindle and inside hole jointing face of right crankcase	(Spindle ,right crankcase)	Lubricating-oil
Outside surface of reserve gear controlling rod	(Reverse gear controlling rod crankcase)	Lubricating-oil
Contactor of reserve gear switch	(Reverse gear swtich ,reverse gear fork)	Lubricating-oil
Outside surface of short fork shaft	(Fork shaft ,fork crankcase)	Lubricating-oil
Outside surface of long fork shaft	(Fork shaft ,fork ,crankcase)	Lubricating-oil
Shift gear camshaft portion,slot portion,contactor	(Fork, shift gear cam ,crankcase)	Lubricating-oil
Outside surface of shift gear shaft	(Shift gear shaft and it's contacting portion)	Lubricating-oil
Outside surface of over-wheel shaft	(Over-wheel shaft ,crankcase)	Lubricating-oil
Bushing inner hole of big gear of electric stater	(Bushing,left crankcase)	Lubricating-oil
Electric starting clutch	(Rolling post and it's contacting portion)	Lubricating-oil

Chapter II MAINTENANCE AND ADJUSTMENT OF VEHICLE

Note:

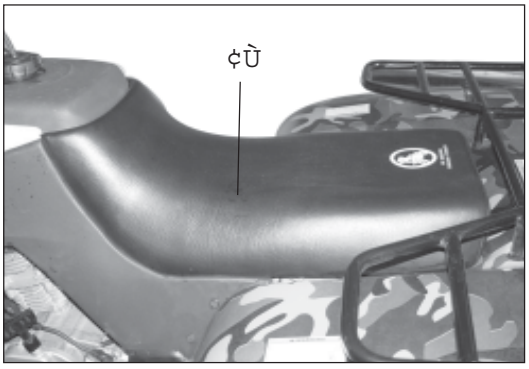
The correct maintenance and adjustment are necessary to ensure vehicles, normal driving.The repair personnel should be familiar with the contents of this article.

Section 1 Periodic Maintenance/Lubrication

Item	Requirement	Every time			Every	
		1 month	3 month	6 month	6 month	1 year
Valve	Check the valve clearance.Adjust it if necessary.	¡ð		¡ð	¡ð	
Spark plug	Check the clearance and clean the plug. Replace it if necessary.	¡ð	¡ð	¡ð	¡ð	
Air filter	Clean it. Replace it if necessary.					
Carburetor	Check the idle or starting state.Adjust it if necessary.		¡ð	¡ð	¡ð	
Cylinder head	Check it there is crack or damage in gas tube.Replace it if necessary.			¡ð	¡ð	
Exhaust system	Check the leakage.Tighten it again if necessary.Replace the gasket if necessary.			¡ð	¡ð	
Spark surpressor	Clean			¡ð	¡ð	
Oil circuit	Check the cracks or damage of oil tube.Replace it if necessary.			¡ð	¡ð	
Engine oil	Replace.(Preheat the engine before draining the oil)	¡ð		¡ð	¡ð	
Oil filter	Clean	¡ð		¡ð		¡ð
Oil filter screen	Clean	¡ð		¡ð		¡ð
Gear case oil	Check the oil level and leakage.Replace.	¡ð				¡ð
Brake	Check the operation.Adjudt it if necessary.	¡ð	¡ð	¡ð	¡ð	
Clutch	Check the operation.Adjudt it if necessary.	¡ð		¡ð	¡ð	
Wheel	Check the balance,damage,run-out etc.Replace it if necessary.	¡ð		¡ð	¡ð	
Wheel bearing	Check the looseness and damage.Replace it if necessary.	¡ð		¡ð	¡ð	
Front&Rear suspension system	Check the operation and correct it if necessary.			¡ð		¡ð
Steering system	Check the operation and corrcet it if necessary.Check the toe-in and adjust it if necessary.	¡ð	a¡ð	¡ð	¡ð	
Bearing of steering verticle column	Lubricate every 6 months (lithium soap grease)			¡ð	¡ð	
Connecting piece and fastener	Check all the connecting piece and fasteners of chassis correct them if necessary.	¡ð	¡ð	¡ð	¡ð	

.We advise that the maintenance of these items should be conducted by our saler.

Section 2 Diassembly and assembly of Cushion, Fender and Fuel fank



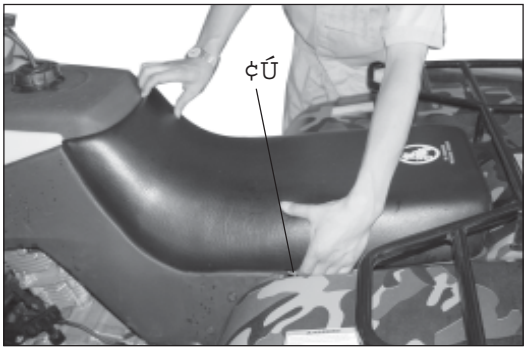
(1) Cushion

1.Disassembly

(1) Place the vehicle on the horizontal ground.

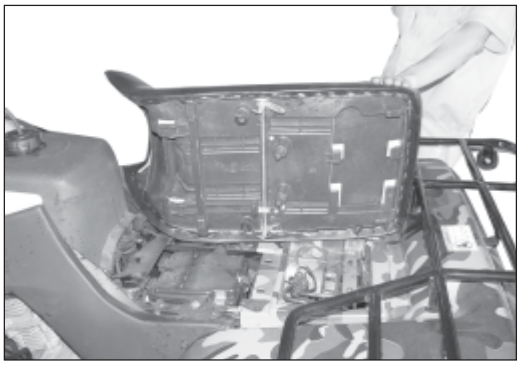
(2) Disassemble the cushion ¢Ù

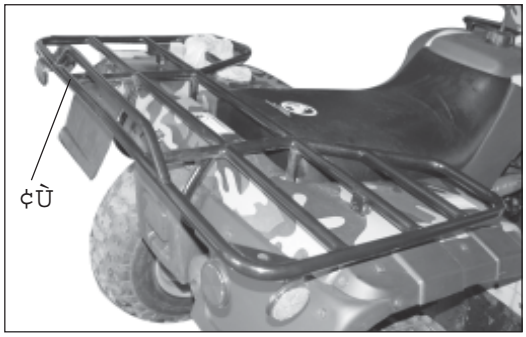
Pull the cushion lock lever ¢Úupward, then raise the tail part of cushion. By that, you can disassemble the cushion.



2.Installation

Firstly insert the support lug on the front end of cushion into the spigot of frame, then press down the rear part. Pay attention to confirm if the cushion is installed firmly.





(II) Rear fender

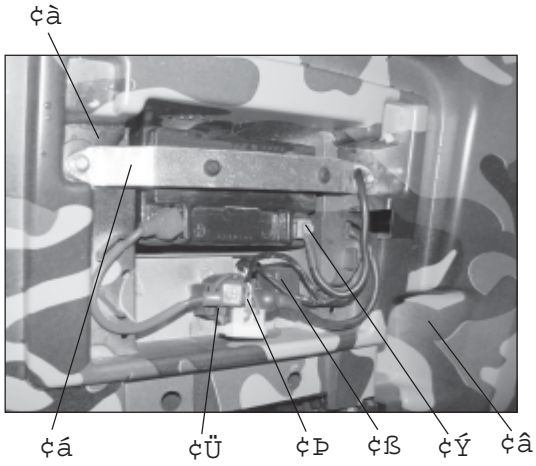
1.Disassembly

(1)Place the vehicle on the horizsontal ground.

(2)Disassemble the rear luggage carrier ¢Ù

(3)Disassemble the cushion (see the centents of cushion disassembly in this section)

(4)Disconnect the negative wire ¢Ýand positive wire ¢Üof battery.



Caution

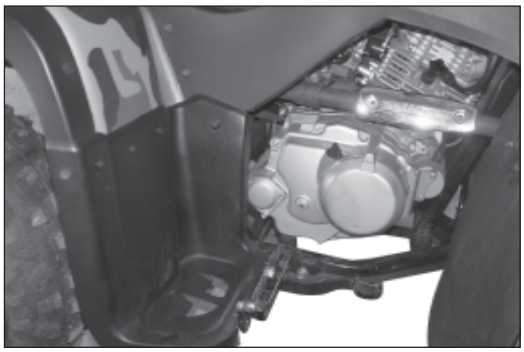
Should disconnect the negative wire¢Ýfistly.

(5)Disassemble the clamp plate ¢áof battery.

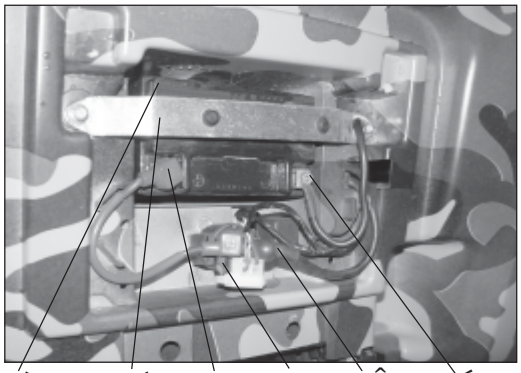
(6)Disassemble the starting relay ¢Þ

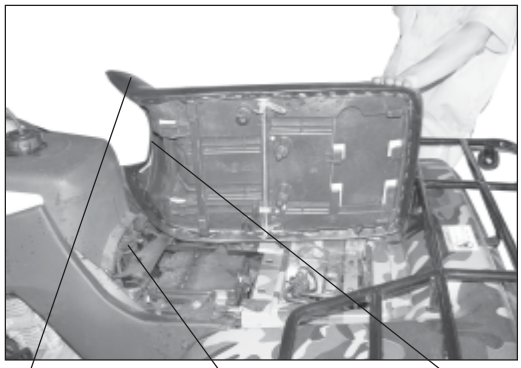
(7)Disassemble the cut-off relay ¢ß

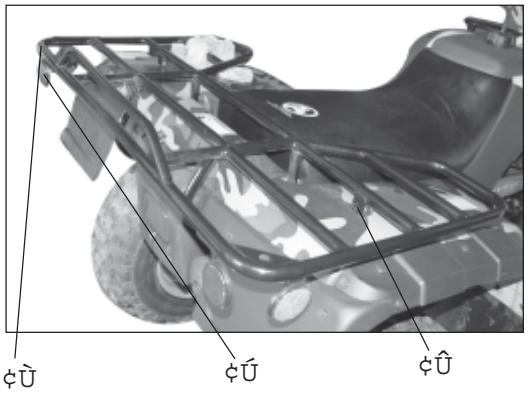
(8)Take out the battery ¢à



(9)Disassemble the rear fender ¢â







2.Installation

Operate according to reverse procedure of “Disassembly”.Pay attention to following points:

(1)Install:

Rear fender

Bolt ¢Ù(rear fender and frame).The torsion is 7N.m.

Bolt ¢Ùand rubber hood of protecting plate (rear fender and frame).The torsion is 7N.m.

(2)Install:

a.Battery ¢Ù

b.Battery clamp plate ¢Ú

⑶ Install:

a.Cut-off relay ¢Û

b.Starting ¢Ü

c.Connect the positive wire ¢Þof battery

d.Connect the negative wire ¢Ýof battery

(4)Install the cushion ¢Ù

Caution

Insert the support lug ¢Úof cushion into the plug seat ¢Ûon the frame, then press down the cushion.

(5)Install the rear luggage carrier ¢Ù

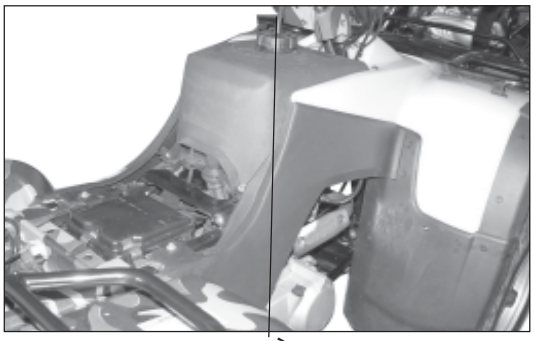
Torque requiement of fasteners:

Bolt ¢Úfastening torque: 3N.m

Bolt ¢Ûfastening torque:9N.m

Caution

Remember to install the bushing on the connecting point of luggage carrier and frame.



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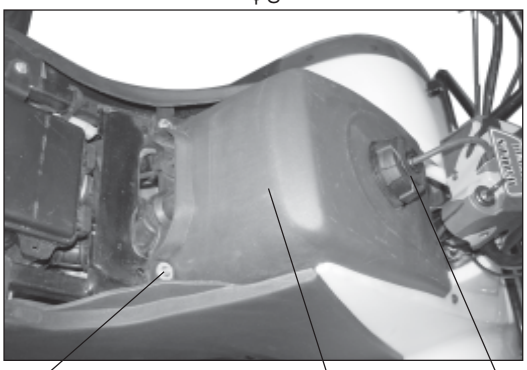

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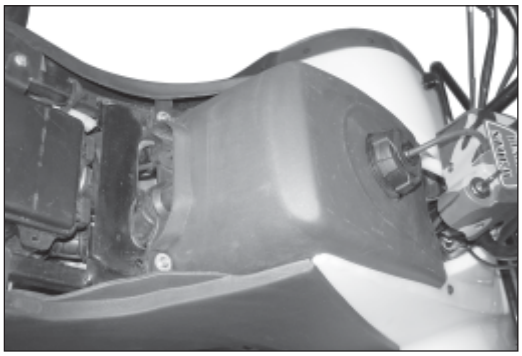


(III)Fuel tank

1.Disassembly

(1)Place the vehicle on the horizontal ground.

(2)Disassemble the cushion (see“Cushion disassembly”of this section)

(3)Remove the air hose ¢Ùon the fuel tank cover.

(4)Remove:

a.Bolt¢Ú flat washer 30, installing bushing of upper cover of fuel tank, washer and rubber hood 2 of fuel tank.

b.Screw

c.Plastic expansion scrwe assy.

d.Fuel tank cover ¢Û

e.Upper cover of fuel tank ¢Ü

(5)Remvoe the rubber pad of fuel tank, and screw the fuel tank cover onto the fuel tank immediately.

(6)Pull the fuel cock lever to “OFF”position.

(7)Remove the fuel inlet pipe

Caution

Place a cloth on the engine to absorb the splashed gasoline.

Warning

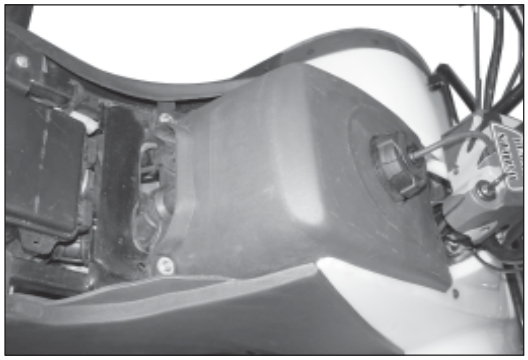
The gasoline is inflammable. Avoid to splash it on the hot engine.

(8)Remvoe:

Bolt, flat washer 30, rubber hood of fuel tank and installing bushing of fuel tank.

(9)Remvoe the air inlet pipe of air filter, supporting pad of air pipe.

(10)Remove the fuel tank.



2.Installation

Operate according to reverse procedure of “Disassembly”,and pay attention to followig points:

(1)Install the fuel tank

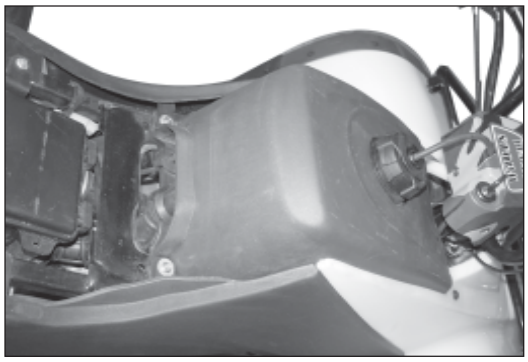
(2)Connect

a.Air inlet pipe and hose

b.Supporting pad of air pipe and air rubber pipe

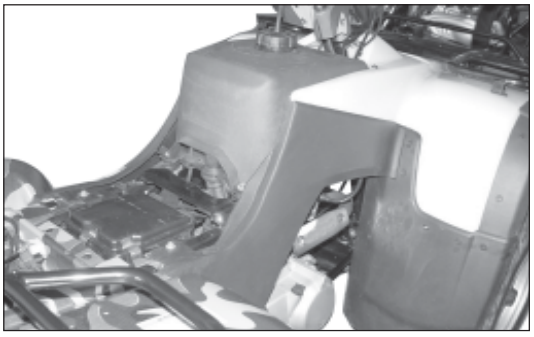
Caution

The convext part on the ring should be foreward when installing the Supporting pad of air pipe.



(3)Install the bolt, bushing of rubber hood and washer.

Fastening torque of bolt:10N.m



(4)Install:

a.Upper cover of fuel tank

b.Fuel tank cover

c.Plastic expansion screw assy

d.Screw

e.Bolt and related fasteners and connecting pieces.

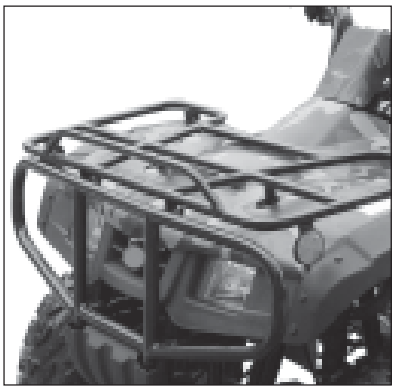
The fastening torque of bolt is 10N.m.

(5)Connect:

.Air hose

⑹ Install

.Cushion(see “Cushion installation”of this section)

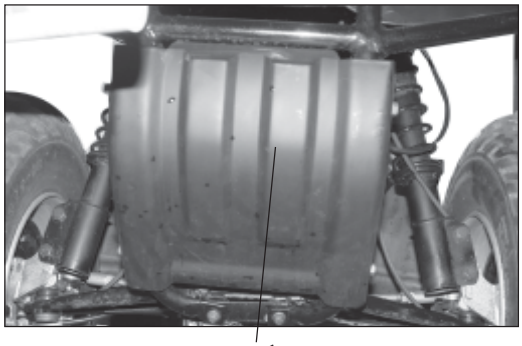


(IV)Front fender

1.Disassembly:

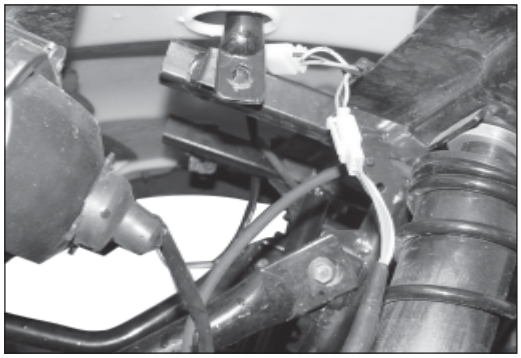
(1)Place the vehicle on the horizontal ground.

(2)Disassemble the front luggage carrier ¢ù



(3)Disassemble the front guarding plate ¢ú

¢Ú



(4)Cut off the connecting wire¢Ùof headlight.
(from connecting point)

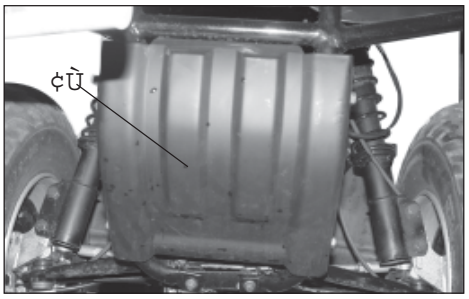
(5)Disassemble the bumper ¢ú

(6)Disassemble the front fender ¢ù

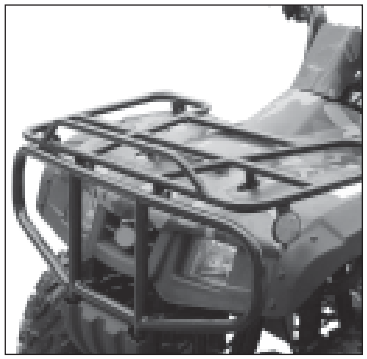
2.Installation:
Operate according to reverse procedures of “Disassembly”.

(1)Install:
a.Front fender ¢Ù
b.Bolt. The fastening torque is 7N.m
c.Bolt. rubber hood of protecting plate:The fastening torque is 7N.m

(2)Install the bumper ¢Ù
The fastening torque of bolt (bumper and frame)is 16N.m.

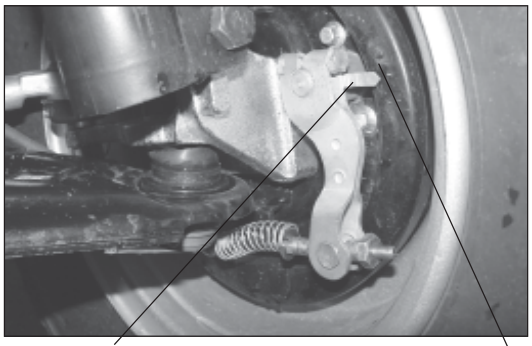


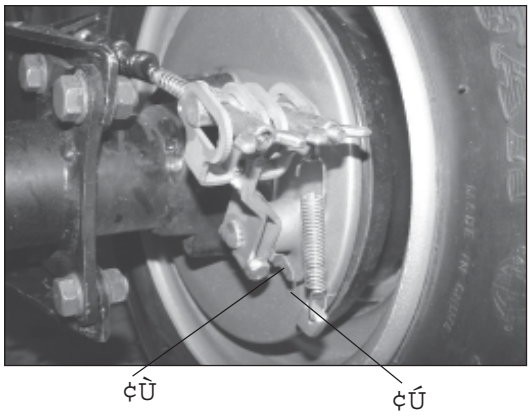
(3)Install the front guard plate ¢Ù

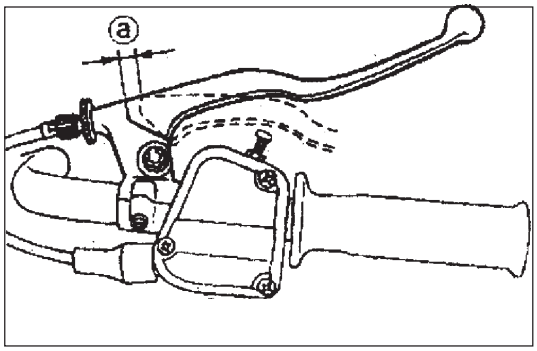


(4)Install the front luggage carrier.
Bolt(front luggage carrier and frame).The fastening torque is 34N.m.
Bolt (front luggage carrier and bumper)..The fastening torque is 11N.m.

Section 3 Maintenance and Adjustment of Vechicle Body







(I)Wear inspection of front&rear brake

1.Check the front brake

(1)Brake the vehicle with front brake

(2)Check:

.Wear indication ¢Ù

.If the wear indication reach the wear limit mark ¢Û,replace the brake shoe assy.

Refer to section“Front wheel and front brake”in chapter VII.

2.Check the rear brake

(1)Thread down the rear brake pedal to brake the vehicle.

(2)Check

.Wear indication ¢Ù

.If the wear indication reach wear limit mark ¢Û,replace the brake shoe assy.

Refer to section “Real wheel and real brake”in chapter VII.

(II)Adjustment of front brake

Caution

Before adjusting, check the wear degree of front brake according to above procedures.

Caution

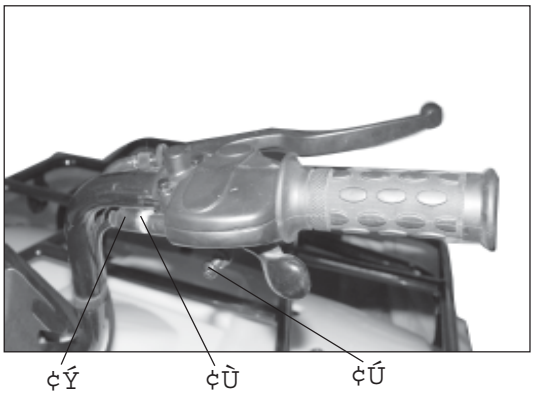
In order to avoid too large or too small brake force when braking, must ensure the proper free clearance of left/right brake lever and rear brake pedal:

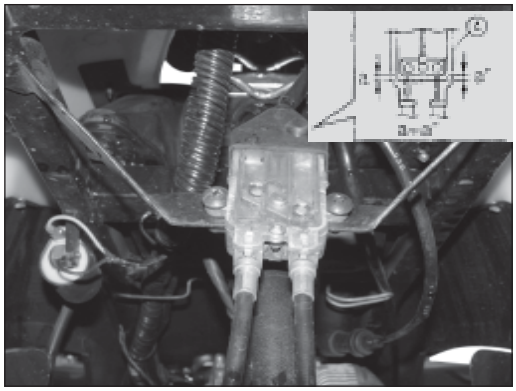
1.Check

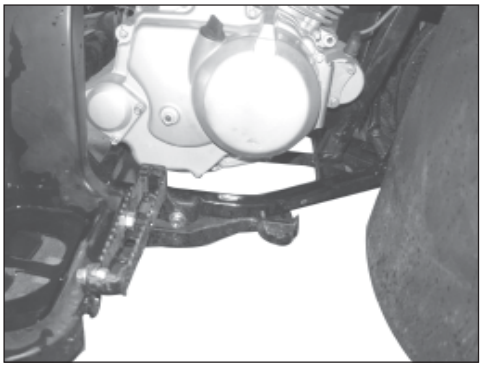
If the free clearance of right lever does not conform to ⓐ specification as shown in figure, adjust it according to followig standard.

Standard free clearance ⓐ of right lever:5-7mm

Calculate from the fulcrum.(ⓐ in figure)







2.Adjustment

Adjusting procedure of free clearance of right lever:

.Loosen the locking nut¢Ùand rotate the cable adjsuting screw ¢Úclockwise to reduce the tension of front brake cable.

.Check the cable joint ¢Üof balancer¢Ûto examine the balance.

.If unbalanced. rotate the two adjusting nuts ¢Ýuntil the cable joint ¢Üis balanced.

.Pick up the front wheel form ground, and rotate the two front wheels, and ensure the two front brake light brake force.

.Rotate the adjusting screw ¢Úclockwise or counterclockwise to gain proper free clearance.

Clockwise: increase free clearance

Counterclockwise:reduce free clearance

.Tighten the lock nut

(III)Adjustment of free clearance of left lever and rear brake pedal.

Caution

Before adjusting, must check the wear condition of rear brake.

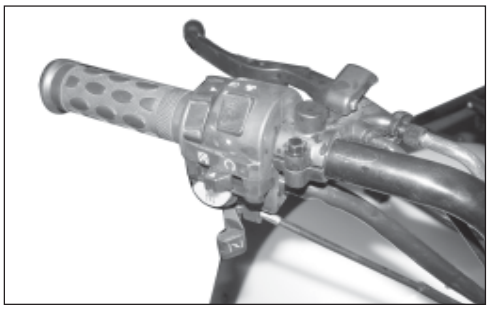
Caution

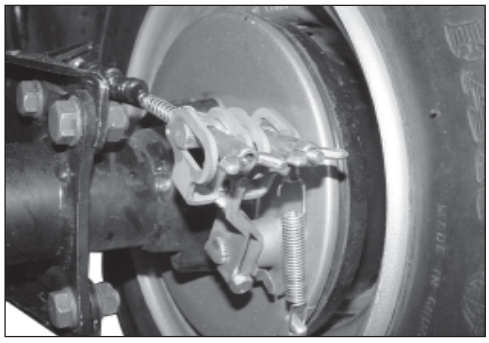
In order to avoid too large or too small brake force of rear brake, must ensure qualified free clearance of left lever and rear brake pedal.

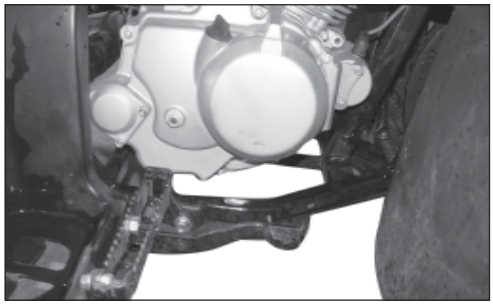
Warning

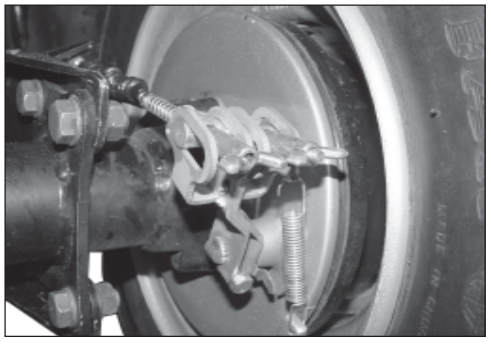
When braking after adjusting, must adjust the left lever and rear brake pedal simultaneously.

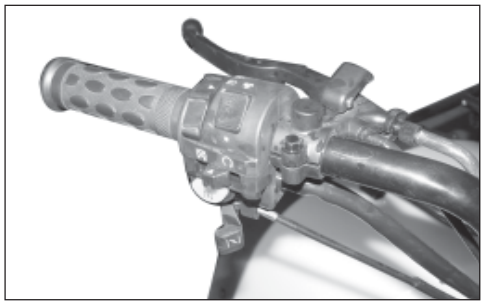
1.Place the vehicle on the horizsontal ground











2.Adjust
.Free clearance of left lever
.Free clearance of rear brake pedal
Adjusting procedure:

Caution

Before adjusting, tread the rear brake pedal 2-3times.
.Loosen the locking nut completely, and screw in the cable adjusting screw completely.

.Loosen the adjusting nut ¢Ûof rear brake cable and adjusting nut¢Üof rear brake pedal.
.Tighten up the adjusting nut ¢Üof rear brake pedal until gaining correct clearance ⓐ :
Free clearance ⓐ (rear brake pedal): 20-30mm.

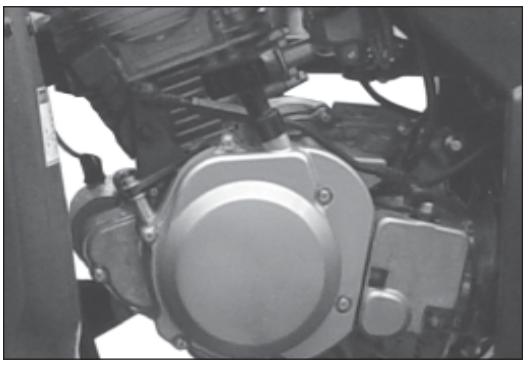
.Rotate the adjusting nut ¢Ûof rear brake cable until gaining correct clearance ⓐ : 0-1mm
¢ÝRear brake arm assy
¢ÞPin

.Screw out the adjusting screw of rear brake cable until gaining correct free clearance ⓑ:
Freee clearance ⓑ(left lever):5-7mm

.Screw up the locking nut
.Check the free clearance of left lever and rear brake pedal.
If not conforming to standard value, repeat above procedures to adjust.

Warning

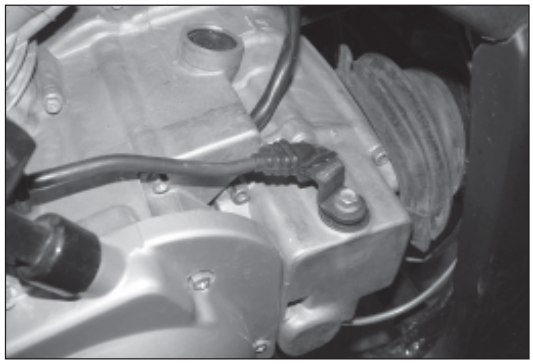
After adjusting, raise the rear wheels from the ground and rotate them to confirm no brake force to block the rotation. Otherwise repeat above adjustment.



(IV)Position adjustment of steering lever
.Position adjusting procedure of steering lever.
.Place the vehicle on the flat guound.
.Change the shift to the 1st gear, and pull the steering lever ¢Ùto reverse gear position.
.Loosen the locking nut ¢Ú
.Screw in or out the adjusting nut ¢Ûof steering lever until the middle line ⓐ of the tension rod plate aims at the alignment mark ⓑ on the rear transmission cover (or the vehicle will not release the gear in driving when on driving or reverse gear.)
.Screw tightly lock nut ¢Ú
Torsion of lock nut :15N.m

Caution

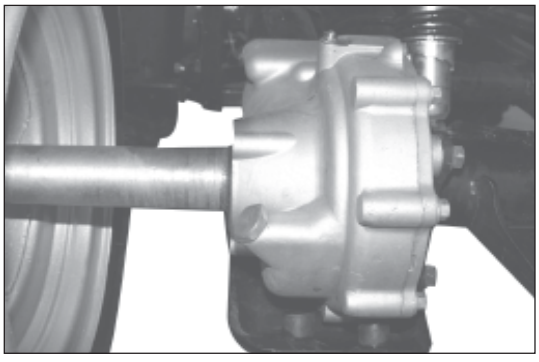
After adjusting the steering lever, ensure the reverse gear indicator to light up when the steering lever is on reverse gear position.



(V)Lubricating oil level inspection of rear driving gear case.
Check the lubricating oil level of rear driving gear case. Refill the oil if the level is low:

Caution

The engine must be in cold state. (at normal temperature.)
Checking procedure:
.Place the vehicle on the flat ground.
.Place an oil catcher under the rear driving gear case.
.Remove the oil filling screw plug ¢Ùand sealing washer.
.Observe the oil level: the correct lever should be on the bottom of oil filling hole.
.If the oil level is too low, please refill the recommended engine oil to specified oil level.
Refer to the section “Replacement of engine oil of real driving gear case”.



.Check the damage of sealing washer .If damaged, replace it .
.Install the sealing washer and oil filling screw plug ¢Ù

Caution

.Install the sealing washer firstly before installing the oil filling screw plug.
.After installing the oil filling screw plug, check the leakage.
Torsion of oil filling screw plug: 23N.m

(VI)Replacement of engine oil of rear driving gear case.

1.Place the vehicle on the flat ground.

2.Place an oil catcher under the rear driving gear case.

3.Remove:

.Below cover of gear case.

.oil Filling screw plug

.oil draining screw plug ¢Ù

Drain out the engine oil of the rear driving gear case.

4.Check:

.Sealing washer (oil filling screw plug position)

.Sealing washer (oil draining screw plug position)

'If damaged, replace them.

5.Install:

Oil draining screw plug(rear driving gear case)

Torsion of oil draining screw plug:23N.m

6.Oil filling screw plug

Caution

Avoid the foreign matter to enter the driving gear case.

Recommended oil:
SAE80API "GL-4" engine oil of hypoid gear
If needing, you may use SAE80W90 engine oil of hypoil gear
Periodic replacement:
0.12L
Total capactity:
0.27L

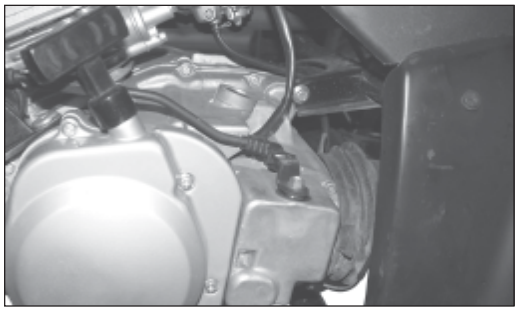
7.Install:

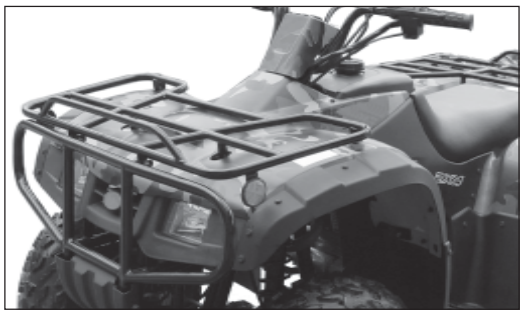
.Oil filling screw plug(rear draining gear case)

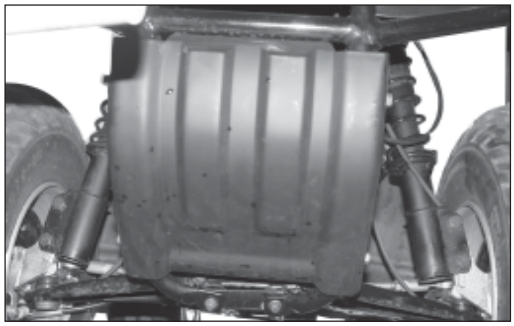
Caution

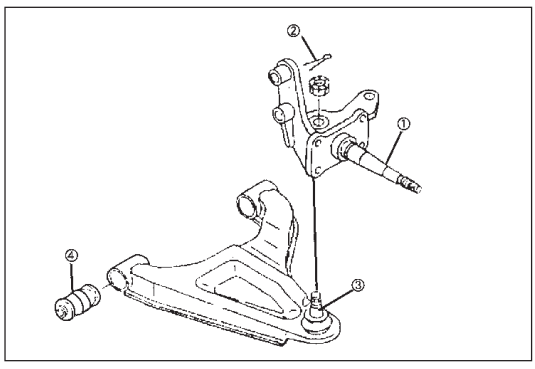
After refilling, check the leakage.

Torsion of oil filling screw plug: 23N.m









(VII) Rubber sleeve inspection of rear wheel fork

Check

.Rubber sleeve ¢Ù

If damaged or worn, replace it.

Refer to the 6th section “Rear shock absorber and rear wheel fork” of chapter3.

(VIII)Inspection of steering system

1.Place the vehicle on the flat ground

2.Check:

.Clamp seat of steering vertical column and sliding bearing on the lower end of steering vertical column, upper &lower and front &rear moving steering bar If the clearance is too large, replace the sliding bearing

Refer to section“Steering system”of chapter3.

3.Check:

.Ball pin unit of steering tension rod.

Rotate the steering bar leftward and/or rightward, then roate from left to right lightly. If the ball pin unit ¢Ùof steering tension rod have any vertical clearance, replace it.

Refer to section“Steering system” of chapter3.

4.Raise up the front end of the vehicle to make the front wheel not bear any load.

5.Check :

.left/right front seat assy on front brake position, and/or bearing 6005-2Z/bearing 6203. When moving the wheel back and forth horizontally, if the clearance is too large, replace the following components:

1)bearing 6005-2z/bearing6203

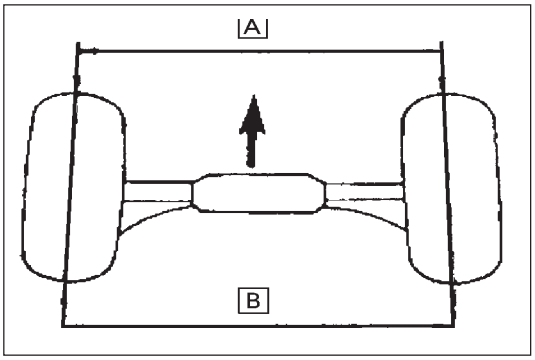
2)left/right front seat assy ¢Ù

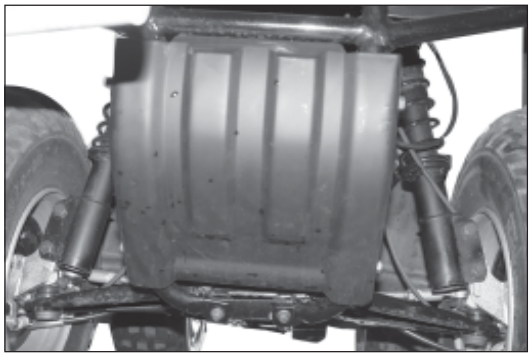
3)split pin¢Ú

4)front fork ball connection¢Û

5)bushing assy ¢Ü

Refer to 4th section“Steering system”of chapter3.





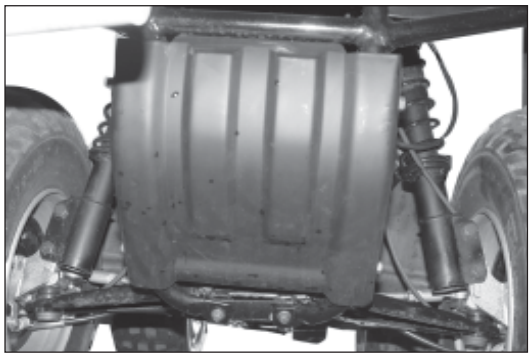
(IX)Adjustment of toe-in of front wheel,
1.Rest the motorcycle on the flat ground
2.Measurement:
.Toe-in
.Adjust if out of specification
.Adjustment steps of toe-in.
.Mark the centers of tire thread of two front wheel.
.Lift the front end of motorcycle to keep the front wheel from force.
.Faster the steering forward. Measure the width between two marks.
.Rotate the front tire by 180^0 up to the marks are in reverse.
.Measure the width B between two marks.
.Calculate the toe-in with the following formular
toe-in=B-A

Standard value of toe-in:0.5mm
.If the toe-in is not correct, please adjust.

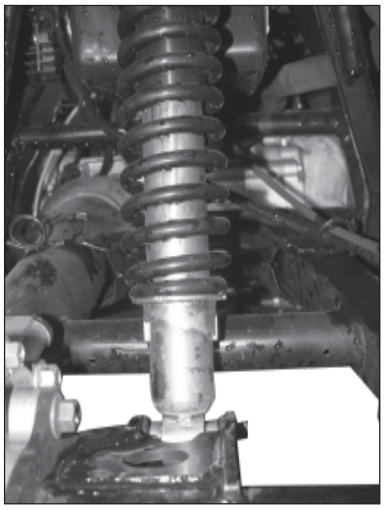
3.Adjusting
Adjusting steps of toe-in:
.Mark determination marks at the end of left/right tension rod ¢Ù
.Loosen the locking nuts at the end of left/right tension rod ¢Ù
.Left/right tension rods ¢Ûshould turn the same turns left or right up to obtain in the specified toe-in and make the left/right tension rods are the same in strength.
Tighten up the the locking nuts ¢Ûat the end of left/right tension rod.
Torque of locking nut :30N.m

Caution

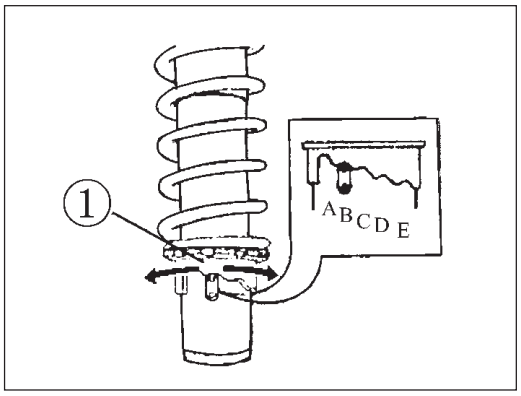
.Make sure that left/right tension rods have turned the same turns. Otherwise the motorcycle will still go forward left and right even though. Operate the motorchycle to go forward straightly with steering bar, easily causing to getting out of control and accident.
.After adjusting the toe-in correcty drive the motorcycle to move forward a span of distance by fastening the steering bar so as to make sure if the steering bar is normal, if not, adjust the tension rod left or right within the specification.



(X)Inspecion of front/rear shock absorber
1.Rest the motorcycle on the flat ground
2.Inspection:
.Ball joint assy ¢Ù(Upper part of front shock absorber).
If broken/Damaged. replace the front shock absober.
.Rear shock rod ¢Ú(Rear shock absorber)
If scraped/damaged. replace the rear shock absorber
.Oil leakage ¢Û
If the heavy oil leakage of front /rear shock absrobers is found, replace it.
Refer to section of “Front shock Absorber and Front wheel Fork”or Section of “Rear shock Absorber ”and Rear “Wheel Fork”.Chapter Three. Section Five and section Six.



3.Inspection
.Operation:
.Shock the fornt /rear shock absorbers up and down two times.
.If it is not active in operation, replace the component.
Refer to Section of “Front shock Absorber and Front wheel Fork”or Section of “Rear” “Wheel Fork”.Chapter Three.
Section Five and Section Six.



(XI)Adjustment of rear shock absorber
Adjustment of spring preload:
Turn the adjusting ¢Ùto increase or decrease the spring preload.

Caution

The spring preload of rear shock absorber can be adjusted to be applied to needs, hobby, Weight of the operator and driving conditions.
Standand Position:B
A-Softest
E-Hardest

(XII) Inspection of tire

Warning

This motorcycle adopted the low pressure tire, So correct filling pressure and keeping the proper pressure is very important.

.Tire characterics

1)Quality characterics of tire will affect the driving reliability of ATV. The following types of tires reliability by our company be used safely by this motorcycle. If adpot other tires it will cause the disadvantageous effect.So they are out of recommendation.

	Manufacturer	Dimension	Type
Front	Zhengxin or Wuxi	AT22 ¡Á7-10	Zhengxin or Wuxi
Rear	Zhengxin or Wuxi	AT22 ¡Á10-10	Zhengxin or Wuxi

.Tire pressure

1) Recommended tire pressure.

Front 20Kpa(0.20kg f/cm^2)

Rear 25Kpa(0.25kg f/cm^2)

2)The overlow tire pressure will cause the tire came out of the rim in bad driving condition.

The Min. tire pressure

Front 17Kpa(0.17kg f/cm^2)

Rear 22Kpa(0.22kg f/cm^2)

3)When installing the tire to the rim, the tire pressure should be no more than.

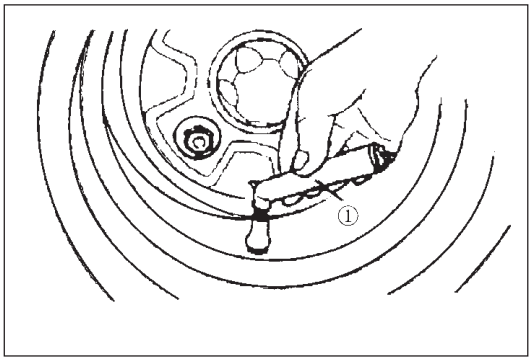
Front 250Kpa(2.50kg f/cm^2)

Rear 250Kpa(02.50kg f/cm^2)

After installing the tire to the rim, the overhigh pressure will cause explosion. Filling pressure should be conducted slowly and carefully, the overfast fillig pressure will cause the tire to explosion.

Caution

The Max load of the motorcycle is 165kg (including driver)



1.Measurement
.Tire pressure(nomal atmospheric temperature):
If out of specification, adjust.

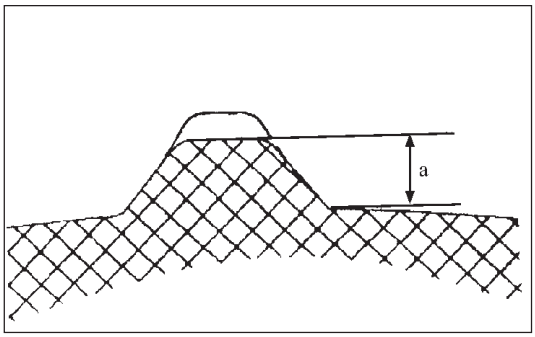
Caution

.The manometer of tire belongs to spare parts of the motorcycle(Never use the high pressure).
.If the foreign matters such as dust, etc are absorbed in the tire pressure manoeter, the readig of the meter will be not correct, at the moment, the second measurement should be conducted and the second measurment reading should be adpoted.

Warning

.Uneven and Improper tire pressure is disadvantageous to driving of the vehicle, which may cause getting out of control.
.Keep the proper tire pressuer
.The tire pressures of two front tires and two rear tires should be kept identically.

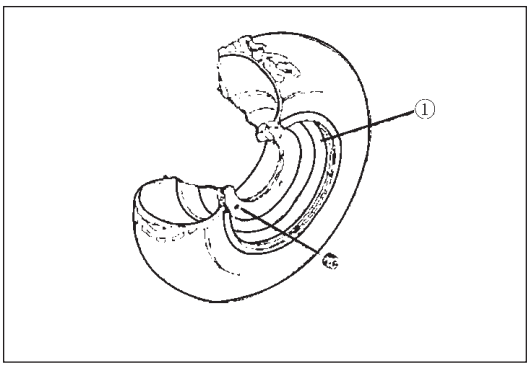
Normal temperature tire pressure	Front	Rear
Standard	20kpa(0.20kgf/cm²)	25kpa(0.25kgf/cm²)
Min	17kpa(0.17kgf/cm²)	22kpa(0.22kgf/cm²)
Max	23kpa(0.23kgf/cm²)	28kpa(0.28kgf/cm²)



2.Inspection
.If wear/damage is found on the surface of tire, replace.

Warning

Using the overworn tire is very dangerous.
If the tire is worn to the specified position,replace immediately.
Wear limit of tire:
Front and rear tires: 2.0mm@



(XIII)Inspection of rim
Inspection of rim ¢Ù
If cracked/bent/damaged,replace it.

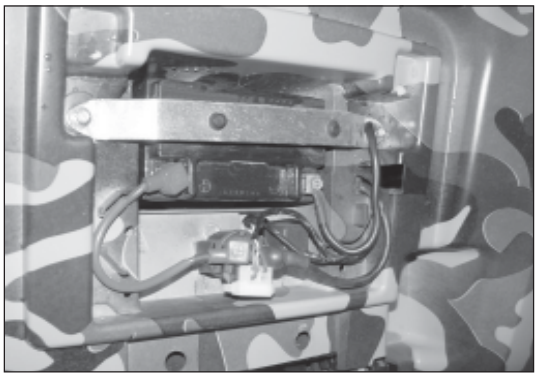
Caution

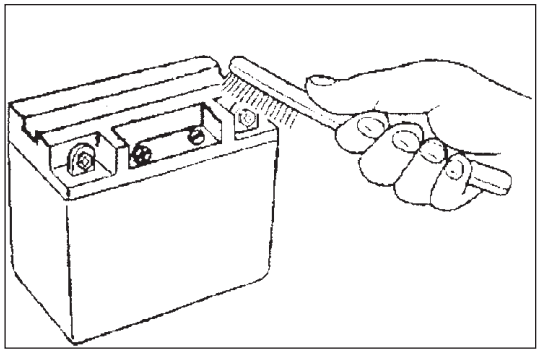
Keep the rim in balance when replacing the rim or tire.

Warning

Never attempt to repair the rim.

Section 4 Maintenance and Adjustment of Electrical Appliance





(I)Inspection of battery
Warning:
The electrolyte is dangerous article, whitch includes sulphuric acid, so it is poisonous and corrosive.
.Please operate by the following steps:
a.Avoid the body touching the electrolyte so as to protect the eye from burn or damage.
b.Wear the protective glasses when operating near the battery.
.Avoiding measures(External):
a.Wash the skin with water.
b.Wash the eyes for 15 minutes with water, then conduct treatment at hospital.
.Avoiding measures (Internal):
Drink a plenty of water , magnesia oxide, egg and rapeseed oil, and conduct treatment as early as possible.
.The battery can produce explosive gas, so follow the following protection measures:
a.Be sure to keep the ventilation when changing the battery.
b.Keep it away from spark, flame,(such as welding equipment, burning cigarette, etc).
c.Smoking is strictly prohibited when charging or operating the battery to keep the battery and electrolyte away from children.
1.Removal (Refer to the content of Section Two of this chapter.)
.Cut off
Refter to “Removal of cushion”of this chapter.
Battery electrode (negative electorde¢ũpositive electrode)

Warning

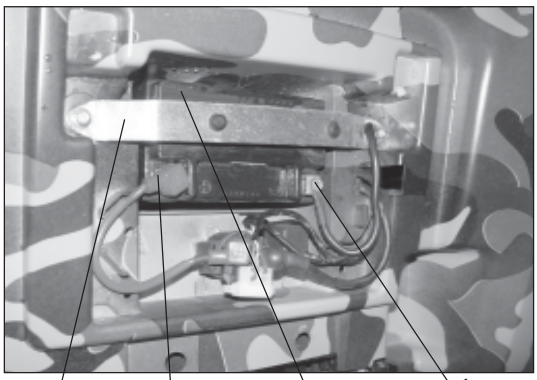
First remove the negative electrode
3.Removal:
a.Battery clamp plate ¢Ü
b.Battery clamp plate ¢Û

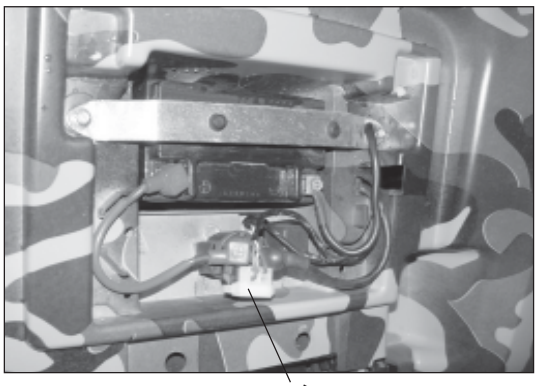
Caution

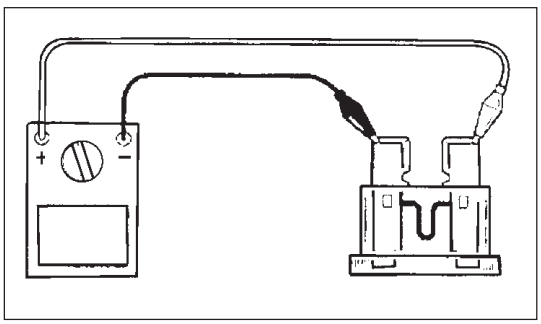
Before using a new battery, be sure to charge to ensure the best condition of the vehicle.
4.Inspection of battery electrode
If the dirt is found, clean off with brush.
If it is not connect well , correct it.

Caution

After cleaning the electrode, apply a film of lubrication grease.







5.Inspection of battery
If damaged, replace it

6.Installment of battery ¢Û
7.Connect
.Battery electrode(positiove electrode ¢Ù negative electrode ¢Ú)

First connect the positive electrode ¢Ù

8.Installment:
a.Battery clamp plate ¢Ü
b.Cushion

(II)Inspection of fuse

Caution

Closet the main switch when checking or replacing the fuse, otherwise, it will cause the short circuit.

1.Inspection steps
.Remove the fuse ¢Ù
.Connect the small-size test instrumentation to measure if the fuse is connected well.

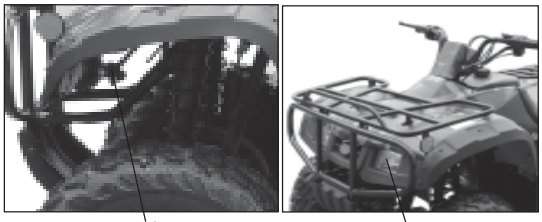
Caution

Set the test instrumentation at the postion of "52 ¡Á1"

Small size test instrumentation:
9/N.YU-03112
90890-03112

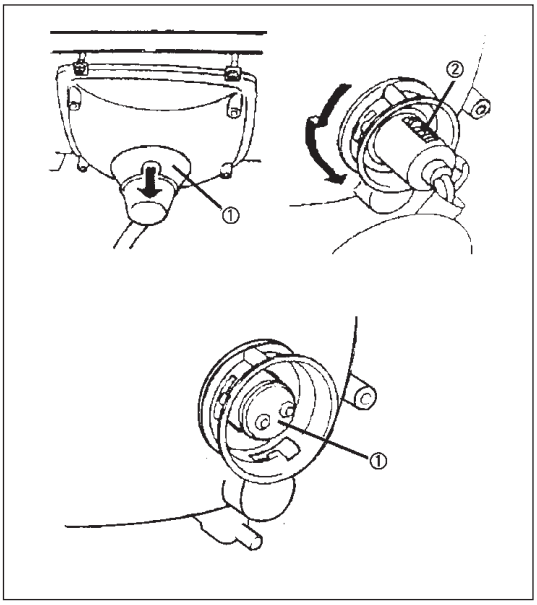
.If the indicating meadle indicates toward ¡Þ the fuse has broken needing to be replaced.

2.Replacement of fused fuse
Replacement steps:
.Cut off ignition and circuit.
.Install the qualified fuse
.Start the power for electrical appliance inspection.
.If the fuse fused, inspect the system again
Refer to “Elefctrical Appliance”of Chapter Four



3.Installment of fuse cover

(III)Replacement of headlight lamp
1.Cut off
.Connecting wire terminal of headlight ¢Ù
2.Removel
.Unit of headlight¢Ú

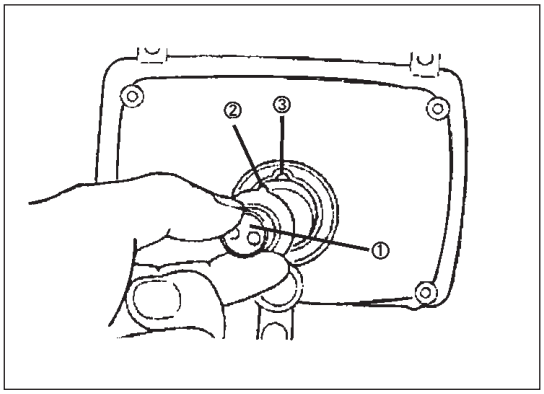


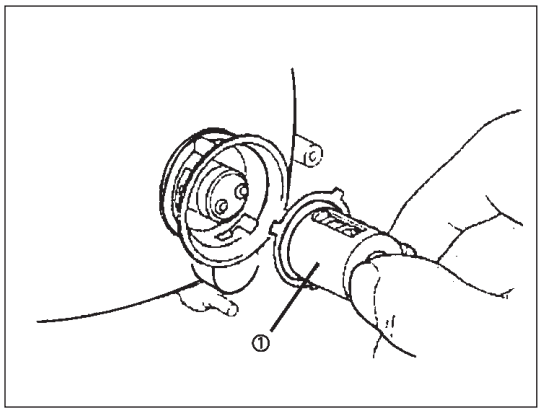
3.Take out the lens ¢Ù
4.Removal the lens seat ¢Ú
Rotate countercolockwise when taking out the lens ¢Û
Caution:
When removing the light head hold the front side of the headlight with hand.

5.Remvoal:
.Lamp ¢Ù

Warning

The inflammables is not allowed to approach the lamp which is on, and the lamp is very hot, never touch it before cooling.





6.Installment
.Lamp ¢Ù(new)

Caution

Be sure that the projective part on the lamp ¢Úis engaged with the convex groove ¢Ûon the light seat.

Caution

Never touch the glass part to avoid the camp to touch the fuel. Otherwise, the lamp will be light permeability, service life and Tlluminating value.If there is some oil, clean off with cloth mixed with alcohol.

7.Connect
.Light seat ¢Ù

Caution

Make sure that the projective part on the lamp is engaged with the comex groove on the light seat.

8.Install the lens to the light seat.

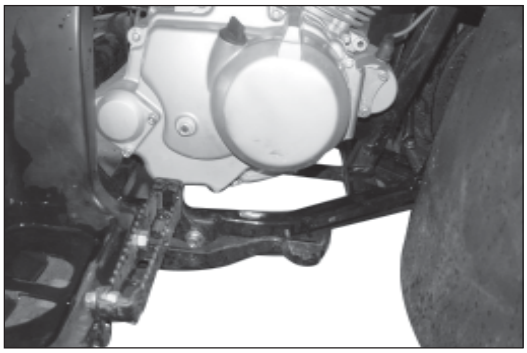
9.Installment
.Headlight

Caution

Install the rubber hole-guard ring of the head-light connecting wire column to the headlight.

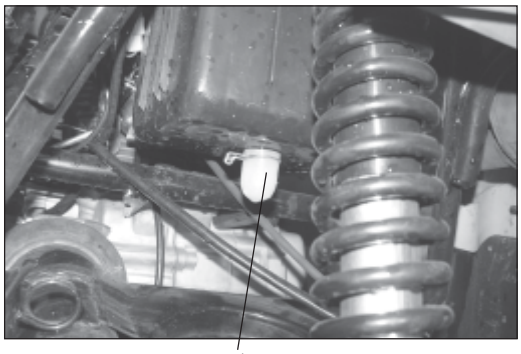
10.Connect
.Connecting wire terminal of headlight.

Section Five Maintainace and Adjustment of Engine



(I)Adjustment of clutch
Adjustment steps:
a.Loosen the locking nut ¢Ù
b.Turn the adjusting screw rod ¢Ûcounter-clockwise slowly up to be unable to turn,then turn1/8 clockwise, and fasten the adjusting screw rod¢Ûto this position and tighten up the locking nut ¢Ùwith the torque of N.m.

Turn the adjusting screw rod ¢Ûcounterclock-wise to decreses the clearance of clutch,Turn the adjusting screw rod ¢Ûclockwise to in-crease the clearance of clutch.

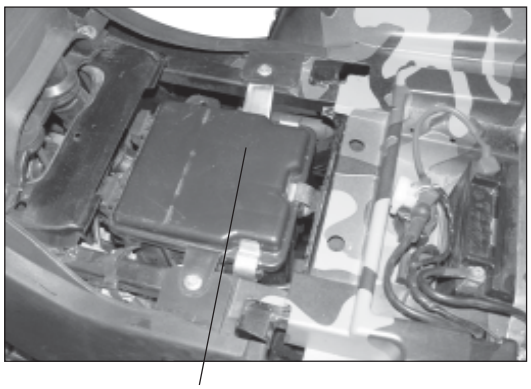


¢Ù

(II)Clean of air filter

Caution

There is a inspection cup ¢Ùon the bottom of the air filter, if the dust or water deposited in the cap, clean the filter core and fitter box of air filter.



¢Ù

1.Remove the cushion (Refer to“cushion re-moval” of this chapter)
2.Remove the air filter box cover ¢Ûair filter components.

3.Removal
a.Air filter core ¢Ù
b.Foam supporting cylinder¢Ù

Caution

Never start the engine without filter, otherwise the piston and cylinder will be overworn.

4.Inspection
a.Air filter core ¢Ù
b.Form supporting cylinder¢Ù
If damaged, replace it.

5.Clean of foam supporting cylinder. Clean off the dust on the inner surface of the foam supporting allinder with compressed air.

6.Clean of the foam filter core:
a.Clean with water completely and slightly.
b.Squeeze the surplus water of the foam and dry it.

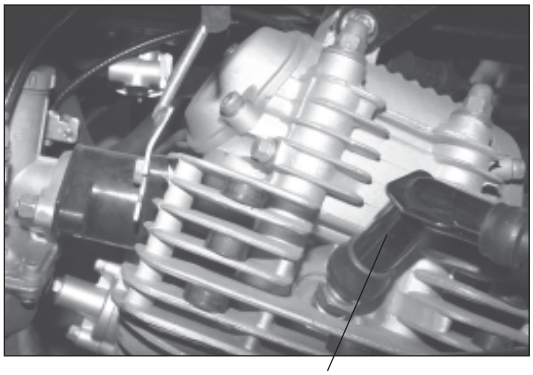
Note:
When squeezing the water on the foam, be sure to be slight.

7.Installment:
a.Install the foam filter core to the foam supporting cylinder to combine a air filter assy.
b. Install the air filter assy.
c.Install the air filter cover.

Caution

Make sure that the close fit surface of air fiter is engaged with the close fit surface of air filter box, and the air leakage is not allowed.

9.Installment of cushion(refer toSection Two "Cushion Installment"of this chapter)



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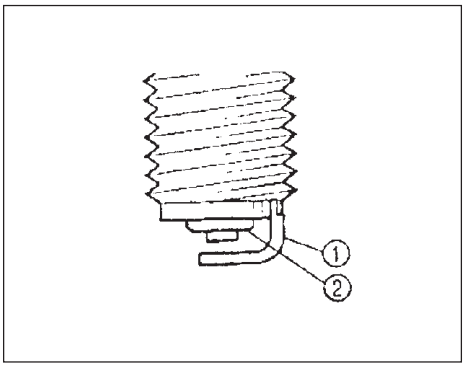
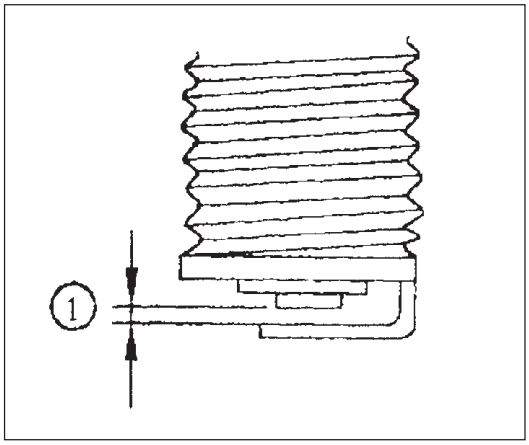




(III)Inspection of spark plug

1.Rest the vehicle on the flat ground and lean the spark plug with compressed air to avoid the dust entering the engine.

2.Remove the spark plug ¢Ù

The standard spark plug type: DTRTC, If not correct, replace it.

3.Inspection of spark plug

a.Electrode ¢Ù

Wear/damaged ¡úreplace

b. Insultor¢Ûcolor

Brown or light brown in normal condition If the color is clearly different ¡úcheck the engine.

4.Clean of spark plug

Clean the sprak plug with spark pluger cleaner of brush.

5.Measure the spark plug clearance ¢Ù Measure with feeler gause. If out of specification, adjust.

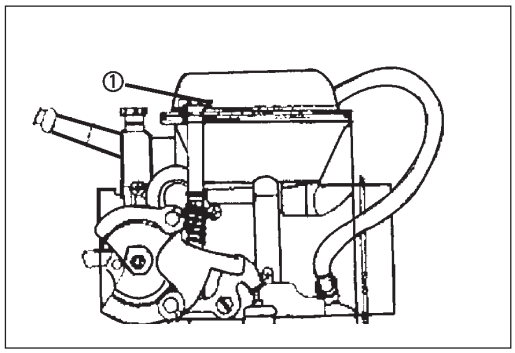
Spark plug standard clearance:0.6-0.7mm

6.Installment of spark plug

a.Clean the washer surface and spark plug surface before installing the spark plug.

b.Tighten up the spark plug with hand before install it according to the specification.

Tightening torque of spark plug:17.5N.m



(IV)Adjustment of idle speed

1.Rest the vehicle on the flat ground

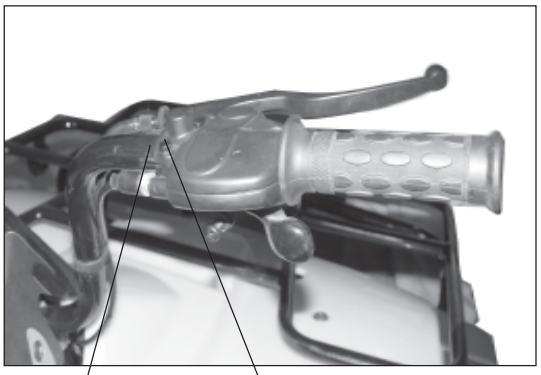
2.Start the engine and prewarm it at the speed of 1000-2000r/min, after several minutes, increase the engine speed to 4000-5000r/min.

3.Set the specified idle speed through adjusting the throttle adjusting screw ¢Ù Screw in to incresase the engine speed and screw out to decrease the speed.

Specified idle speed:1450-1550r/min

4.Measure the engine speed with measuring meter.

5.Make sure that the free clearance of throttle grip is within 3-5mm. otherwise readjust the idle speed.



(V)Adjusting ment of free clearance of throttle grip

Caution

First adjust the engine idle speed when adjusting throttle grip.

1.Rest the vehicle on the flat groud.

2.Inspection

.Free clearance of throttle grip@, If out of specification ¡úadjust free clearance of throttle grip:3-5mm

3.Adjustment

Adjustment steps of free clearance of throttle grip.

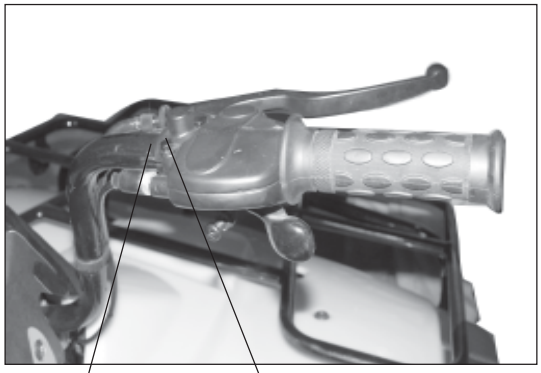
a.Loosen the locking nut ¢Ú.

b.Turn the adjusting bolt up to the free clearance of throttle grip @is 3-5mm.

c.Tighten up the locking nut¢Ú

Caution

After adjusting the free clearance,move the lever forward and rearward to make sure that the engine will not lift.



(VI)Adjustment of speed limitator:

The speed limitator can limit the throttle in full opening condition when the throttle grip is pulled to the Max position, screwing the adjuster inward can stop increasig the speed.

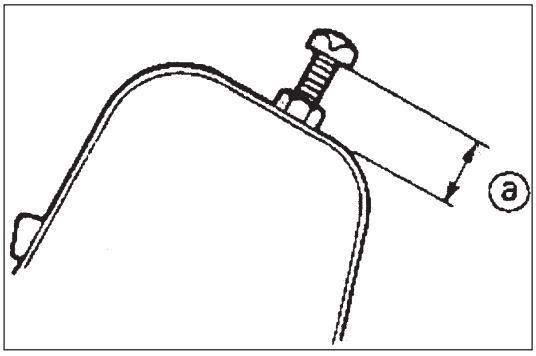
1.Adjust speed limiting length@

Adjustment steps:

a.Loosen the locking nut ¢Ù

b.Adjust the adjusting screw ¢Úclockwise or counterclokwise to make @ obtain the specified length of 12mm.

c.Lock the locking nut ¢Ù



Warning

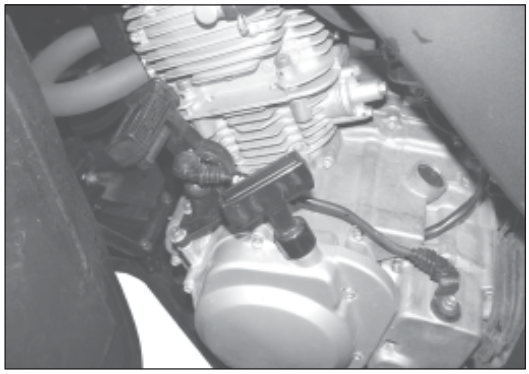
A.For the beginner of driving, pay extral attention to screw in the speed limitator inward and screw out with improvement of driving skill, never remove the adjusting screw of speed limitator.

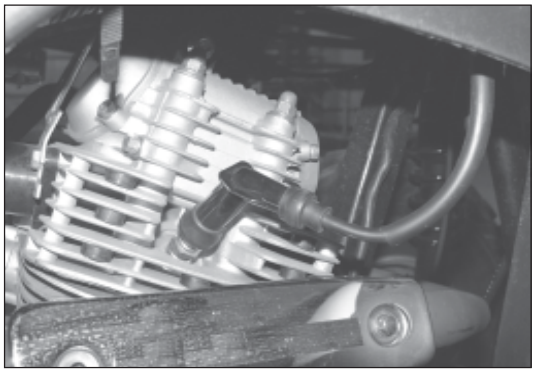
b.For the correct throttle grip operation, never screw out the adjuster to exceed 12mm, and adjust the free clearance of throttle grip to 3-5mm.

(VII)Adjustment of valve clearance.

Caution

The valve clearance should be adjusting only after the engine is cold, the valve clearance should be adjusted when the piston is at the end point position of compress stroke.





1.Removal:

1)Rest the vehicle on the flat ground

2)Remvoe

a.Cushion (Refer to section tow “Cushion Remvoal”of this chaper)

b.Fuel tank (Refer to section tow “Fuel Tank Removal”of this chaper)

3)Remove:

a.Timing observation hole screw¢Ù

b.Manual operation start mechanism ¢Ú

4)Remove:

a.valve cap ¢Ù(the side of exhaust valve)

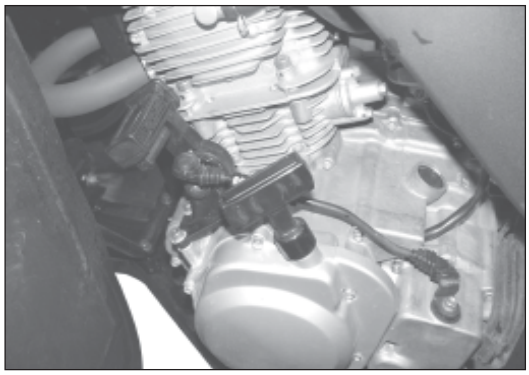
b.valve cap ¢Ú(the side of intake valve)

2.Adjustment

1)Measure the valve clearance

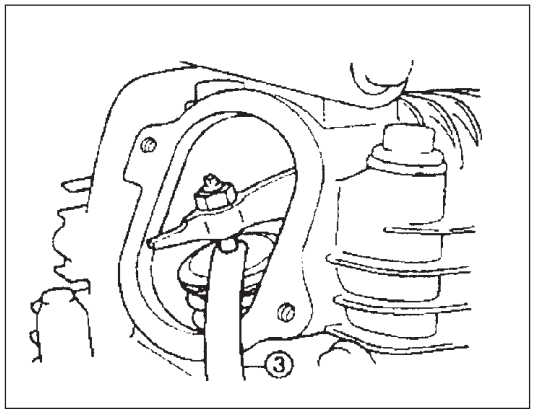
The detailed measure steps are as follows:

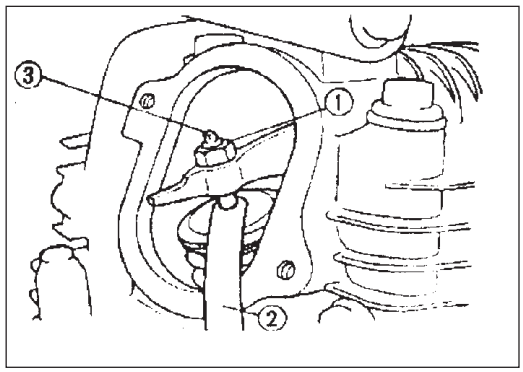
a.Turn the crankshaft counterclockwise with wrench.



b.Make the mark“T”on the rotor is align with the mark on the crankcase. When it is done that is the pistion ties in top dead center(TDC)
c.Inspection of top dead center in pressure stoke:
(i)When the mark ¢Ùon the rotor is align with the mark ¢Úon the crankcase,the two arms must have clearance.
(ii)If there is not clearnance, turn the crankcase a circle by counterclockwise to meet the above requirement.

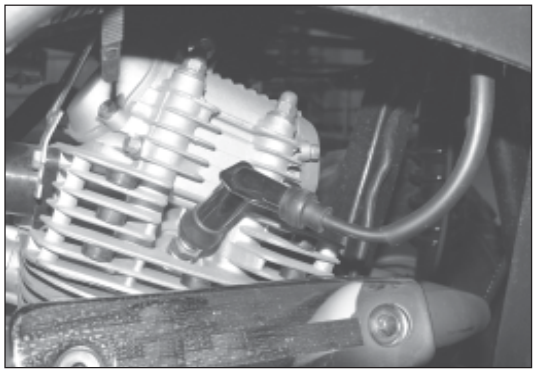
d.Measuer the valve clearance ¢Ûwith plug gauge. Adjust the clearance if it is out of specification.
Intake valve clearance:0.05-0.09mm (normal temperature)
Exhaust valve clearance:0.11-0.15mm(normal temperature)





(2)Adjustment of valve clearance:
a.Loosen locking nut ¢Ù
b.Insert the Plug gauge spanner ¢Úbetween the adjusting screw ¢Ûand valve rod.
c.Turn the adjusting screw ¢Ûby clockwise with valve adjusting spanner until the right clearance is gotten to .
Size of valve adjusting spanner :3mm,code 90890-1311
d.Fix the adjusting screw ¢Ûto avoid turning, and fasten the locking nut ¢ÙTorque of locking nut is :14N.m

(3)Adjust the valve clearance again:If the clearance is not right, adjust it by repeating above adjusting steps.



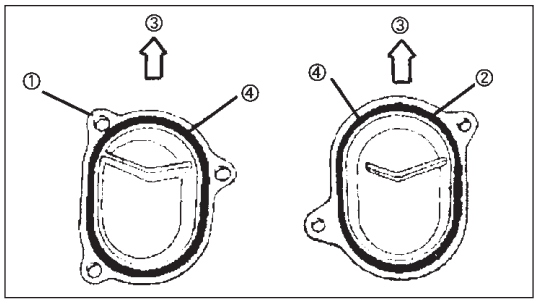
3.Installation:

Carry out it according to opposite steps of “Removal”.

(1)Mount:

a.Valve cap ¢Ù(Side of outlet door)

b.Valve cap ¢Ú(Side of inlet door)



Caution

(i)Project of valve cap ¢Ù¢Úsould be up ¢Û when mounting.

(ii)Check if O-ring ¢Üis damaged. if any, replace it immediately.

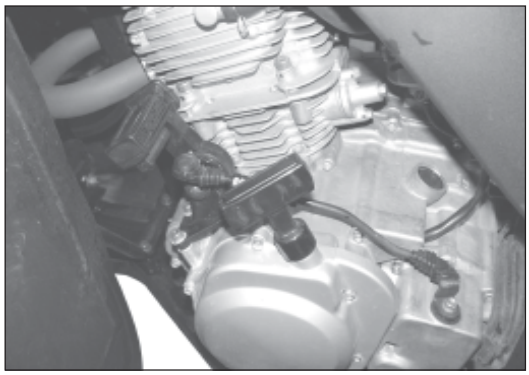
Torque of valve cap: 10N.m

(2)Mount:

a.Oil tank(see Installation of oil Tank in section)

b.Upper cover of oil tank

c.Seat(See Installation of seat in section2)



(VIII)Adjustment of timing chain tension

The engine has automatic adjusting tensioner on the timing chain tension.So manual adjustment is unnecessary.

(IX)Inspection of ignition timing

Notice:

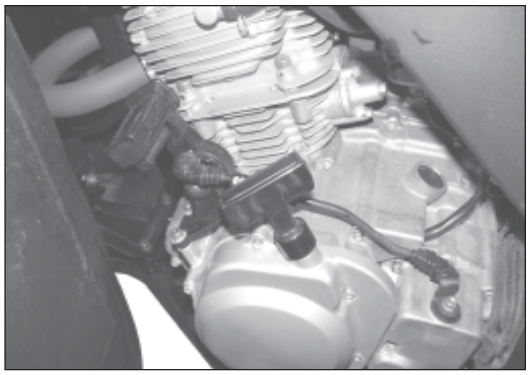
Before checking the correct timed ignition adjust the engine idle speed and free clearance of throttle grip to correct position.

1.Put the vehicle on the flat groud.

2.Start the engine for pre-heating ,and then stop the engine.

3.Mount induction engine tachometer (90890-03113)

4.Mount correct timed ignition meter on connection line of spark plug cap(9890-00314)



5.Inspection of ignition timing.

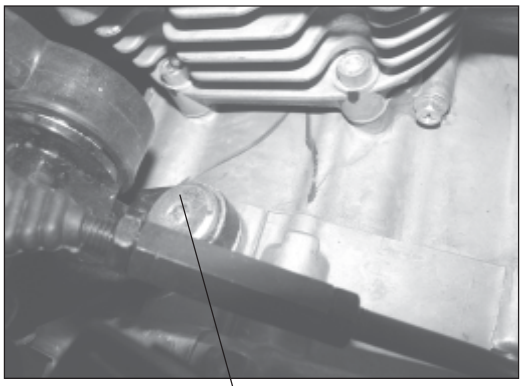
Inspection steps:

a.Take off plug ¢Ù

b.Start the engine, and make the engine run at 1450r/min-1550r/min idle speed.

Warning

When the engine is running, the machine, oil maybe splash out, so be careful to start the engine.



¢Ù

c.Check if the mark ¢Úon the crankcase is in the range¢Ûof ignition under the magneto rotor indication.If it is out of range, check if the rotor and pulse coil is loosen or damaged. (Refer to chapeter 4 electricity)

Caution

Ignition timing can’t be adjusted.

6.Mount plug¢Ù

7.Take off ignition timing meter induction engine tachometer.

(X)Measuring of compressive force

Caution

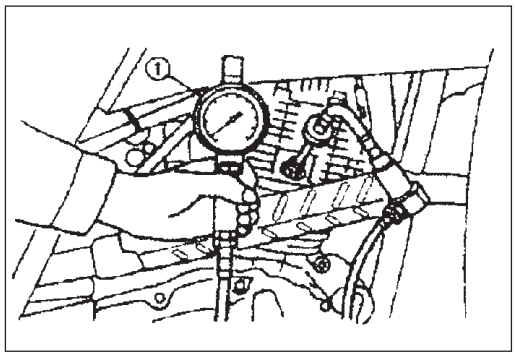
Inadequate compressive force will reduce the engine performance.

Before measuring compressive force. Valve clearance should be adjusted first (refer to “Adjustment of valve clearance section).

1.Put the vehicle on the flat ground.

2.Take off spark plug.

3.The following is steps of measuring compressive force:



a.Install pressure gauge and change connector.

b.Turn the throttle lever to Max point.

Start the engine with power (battery has charged enoughly)until no increase of read pressure gauge.

Warning

When starting the engine, the spark plug must be connected to ground for avoilding spark.

c.When checking the following ,the read of pressure gauge:

Compressive force on sea level:

Standard value:9000Kpa(9.0kg/cm^2)

Min.Value:800Kpa(8.0kg/cm^2)

Max.Value:1000Kpa(10.0kg/cm^2)

d.If the pressure is lower than the min,value:
(i)Drop some oil to action cylinder.
(ii)Measure the pressure again

Compression force(The machine oil has been filled in the cylinder)	
Compressure read	Reason
Read is highter than one before filling	Piston or piston ring is worn or damaged
Read is equal to one when no oil	Piston ring, throttle cylinderhead, washer maybe be damaged.
Read is over max. value	Check if the cylinder head throttle surface or piston top end are carbon laydown.

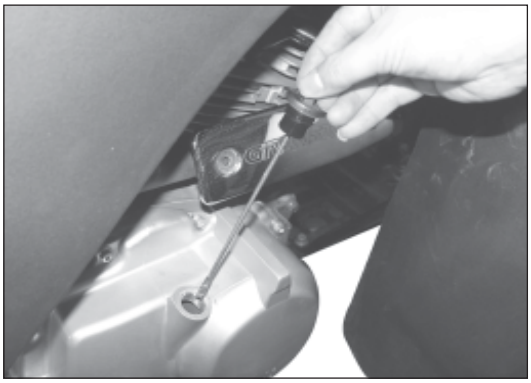
4.Take off pressure gauge

5.Mount spark plug, Torque of mount is 175N.m

(XI).Inspection of oil quantity of engine

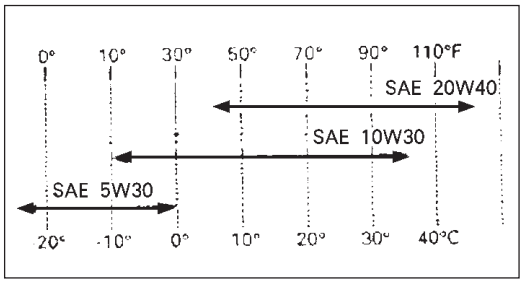
Foreign

No foreign matter in crankcase
1.Put the vehicle on the flat ground
2.Check the quantityof engine oil.If it is inadequate, fill it.
Inspection steps:
a.Pre-heat engine for several minutes, and then turn off it.After waiting for more than ten minutes, return the machine oil into crankcase.



b.Turn out the dipstick ¢Ùentirely, and clean it, then insert it¢Ùback into oil hole.
c.Take out the dipstick ¢Ùto check if the oil level is between the Max. value and the Min. value ¢Û

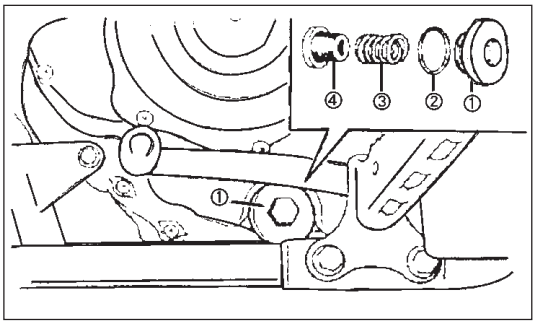
d.If the oil quantity is too small, fill some engine oil to make the oil quantity get to proper quantity. About recommended oil, see left diagram.



Caution

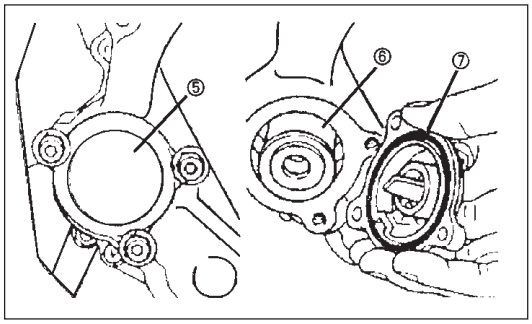
Recommended oil type:
U.S.A Petro Association offers: “SE”. “SF”type equal oil, such as :“SF-SE-CC”“SF-SE-SD”etc.

(XII)Replacement of engine oil and inspection of oil flow.



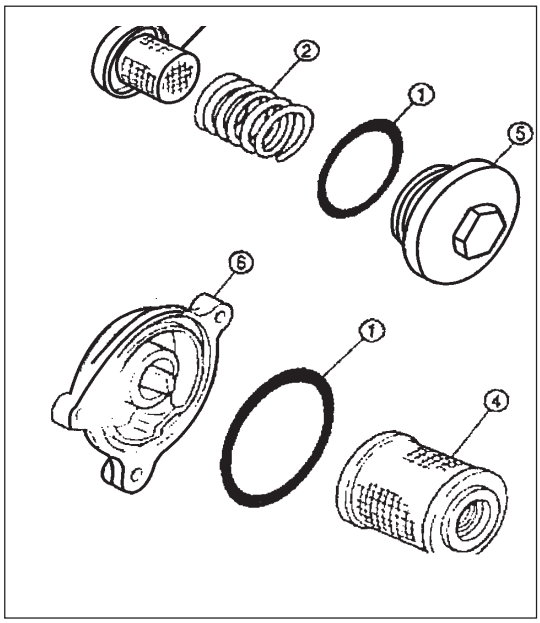
Caution

Engine oil can be used to lubricate clutch, but don’t use any chemical additive in machine oi l, because the additive can lead to clutch out of work.
Don’t permit any foreign matter into crankcase.
1.Put the vehicle on the flat ground.
2.Pre-heat the engine for several minutes, then stop it.
3.Put a container under the engine.
4.Take off oil dipstick, draining plug¢Ùto drain the engine oil.



Warning

When taking off draining plug, compressure spring ¢Ûrough filter ¢Üand O-ring ¢Ýis easy to lose. So pay attention to these parts.
5.Take off fire-filter cap ¢Ýfine filter ¢Þand O-ring ¢ß



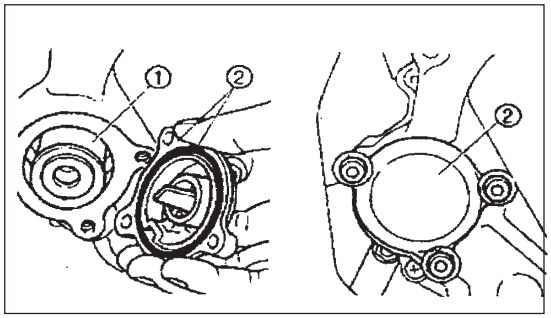
6.Inspection

One of parts of O-ring¢Ù, compressure spring ,rough filter ¢Ûfine filter ¢Üis damaged, repalce it.

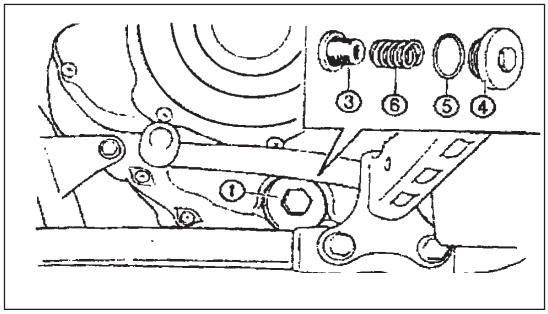
7.Cleaning

Clean the compressure spring¢Ý filter¢Ûfilter ¢Ü filter plug of crankcase¢Ýand filter net cap with cleaner.

8.Coat the engine oil on the O-ring slightly.



9.Install the fire filter¢Ù fire filter cap with O-ring ¢Ûrough filter ¢Ûand draining plug ¢Ü



Warning

Before installing the draining plug, mount O-ring ¢Ý,compress spring ¢Þand fine filter and be ensure that their mounting order must be correct.

Mounting torque :fine filter cap:10N.m

draining plug:40N.m

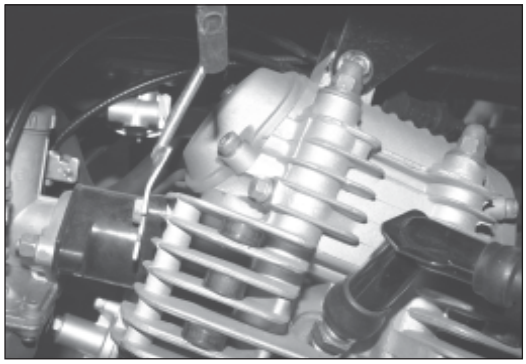
10.Fill machine oil into crankcase

Refer to : “Inspection of Engine oil Quantity”

Appendix:Total:2.2L

Periodic changing oil :1.8L

Oil quantity when cleaning or replacing filter net: 1.7L



11.Mount dipstick

12.Pre-heat engine for 5 minutes or more, and then stop.

13.Check the oil flow

Inspection steps:

a.Loosen the bolt¢Ùof cylinder head lightly.

b.Start the engine for racing until the machine oil squeeze out from oil tunnel. If there is no machine oil out for one minute, stop the engine at once for avoiding the engine is damaged.

c.After the troubleshooting of no oil out is resolved, start the engine again and check the oil pressure.

d.Fasten the oil turnnel bolt according to standard.

Fasten torque of the oil turnnel bolt:7N.m

Chapter III Repair and Maintenance of Vehicle body

Section 1Rear Driving Gear Case and Driving Shaft

(I)Trouble

.Trouble judging guidance

Performance	Possible reason
1.When the vehicle accelerates, decelerates or is in idle start, there appears stop or irregular run-out with abnormal noise (pay attention not to confuse with trouble of engine) 2.The vehcicle sounds obvisous boom at low speed,and "Wu Wu"sound when decelerating or accelerating. Or there is regular snap from the case body. 3.The transmission shaft jams and the rear wheel can not rotate.	A.Damaged bearing B.Improper clearance C.Damaged gear D.Driving shaft breaks E.Gear teeth break F.Jam caused by shortage of lubricating oil G.The gear is jamed by foreign matter

Caution

The reason "A","B","C"are very difficult to judage ,The performance is very subtle. And it's very duifficult to distignguish them form normal operating noise. If you doubt it and think these components have been damaged, remove them for special inspection.

(II)Inspection

1.Check abnormal noise:

Following noise may indicates mechanism trouble

a.Boom when sliding, accelerating or decelerating.The noise is direct ration with speed of rear wheel, but not direct ration with higher engine speed and transmission case speed.

b.Noise "Wu Wu ".The noise is different when accerating or decelerating.

Judgement:May be incorrect assembly and too small teeth clearance.

Caution:

It is very easy to damage the gear if the teech clearance is too small. If this condition happens in trial driving after reassembly, you should stop driving immediately to minimized the damage of gear.

c.There is light snap when runing at low speed.

Caution:

This noise must be distinguished from normal operating noise of machine.

Judgement: It is possible that the teeth of gear crack.

Warning

If you doubt that the gear teeth crack, should stop driving immediately.Because this may cease that the transmitting components are jamed by gear fragment and lose control of vehicle, then may damage the driver.

2.Check following condition:

a. Drain out the lubricating oil

If there is a great deal of metal or metal corpuscle on the position of oil draining screw plug,it is needed

to check the rust of bearing which will cause jam.

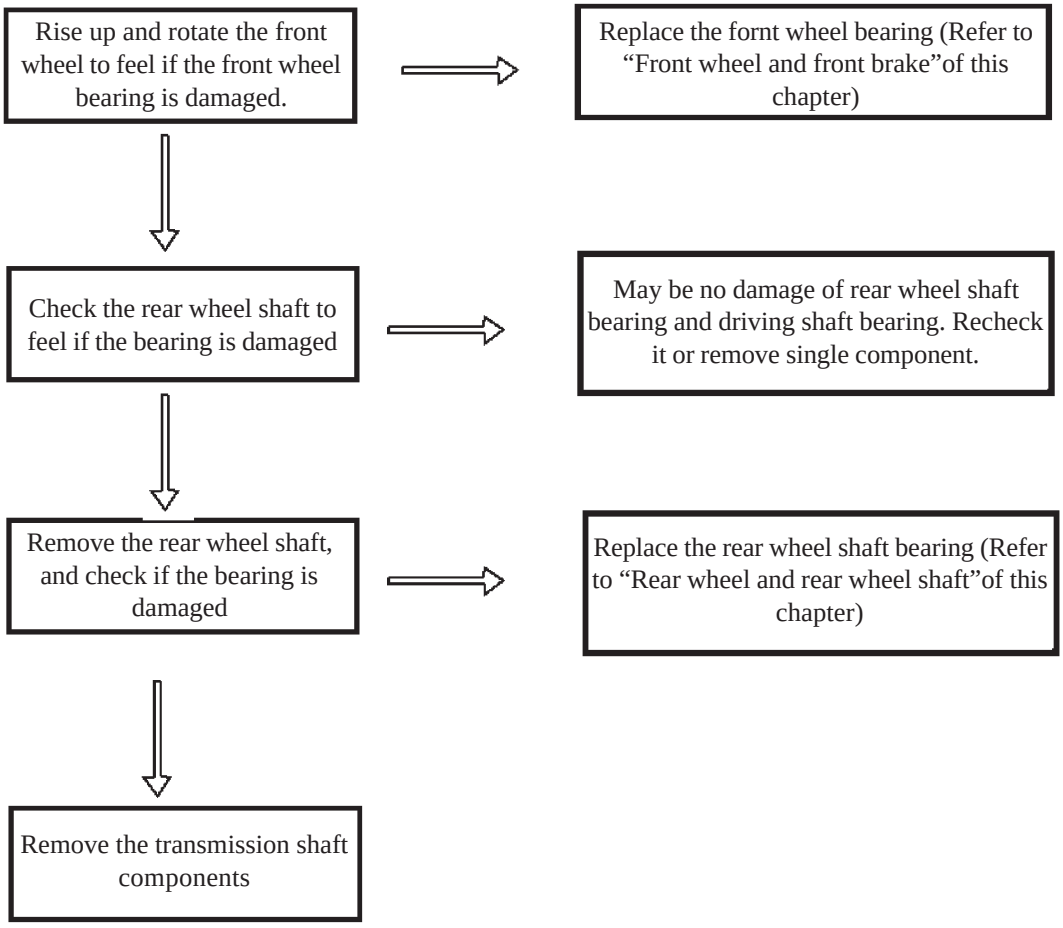
Caution

A little metal corpuscle in oil is normal.
3. Check the oil leakage
Check according to following procedures.
a.Clean the whole vehicle totally, then wipe and dry it.
b.Paint inspecting solvent of oil leakage or dry powder on the transmission shaft
c.Only enough examining distance (Suggestion ¡ Ý5km)can ensure to examine the leakage.
If leaking-check component.
If damaged-replace component

Caution

1.The oil leakage of new or newer vehcile is caused by improper installation of oil seal or damage of oil seal.
2.To the part you doubt the oil leakage, must check and confirm carefully to avoid unnecessary diassembly.

(III)Trouble-shooting table
If there is basic trouble condition, check following points.

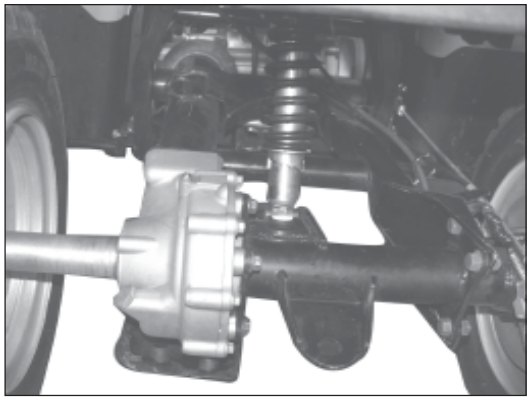

Rise up and rotate the front wheel to feel if the front wheel bearing is damaged.
Replace the fornt wheel bearing (Refer to "Front wheel and front brake"of this chapter)
Check the rear wheel shaft to feel if the bearing is damaged
May be no damage of rear wheel shaft bearing and driving shaft bearing. Recheck it or remove single component.
Remove the rear wheel shaft, and check if the bearing is damaged
Replace the rear wheel shaft bearing (Refer to "Rear wheel and rear wheel shaft"of this chapter)
Remove the transmission shaft components

(IV)Disassembly

Warning

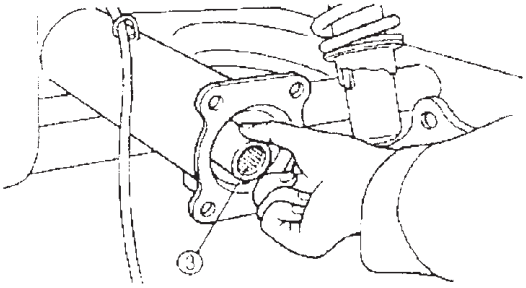
Support the vehicle firmly and ensure no turn-over

1.Drain the oil:
The oil of rear driving gear case
Refer to 3rd section“Replacement of engine oil of rear driving gear case”of chapter2.
2.Disassemble
1)Cushion
2)Rear luggage carrier
3)Rear fender
Refer to 2nd section“rear fender”of chapter



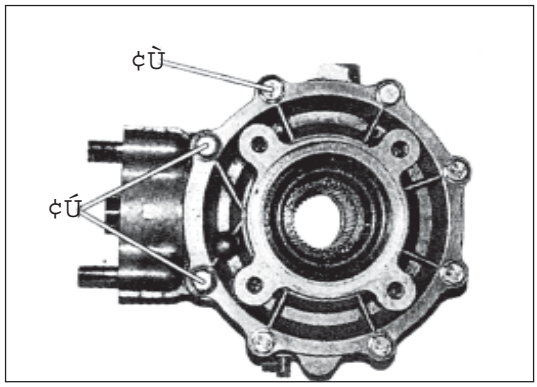
3.Disassemble
1)Rear wheel(left)
2)Connecting plate of rear wheel
3)Rear wheel(right)
4)Rear brake and rear brake hub
5)Rear wheel shaft
Refer to “Rear wheel/rear brake/rear wheel shaft”of this chapter

4.Disconnect:
Air pipe ¢Ù(rear driving gear case)
5.Disassemble
rear driving gear case body ¢Ú



Caution

1) When the driving gear case is removed from the rear wheel fork, the transmission shaft ¢Û may drop out.
2)Pay attention not to lose these components.



1.disassembly

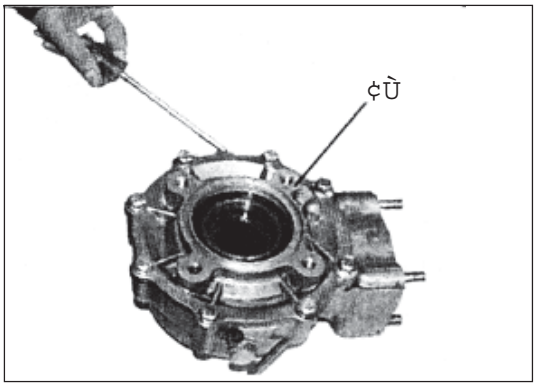
a.Remove

bolt¢ÙM6

bolt ¢ÚM8

Caution

Remove the bolts alternately. Loosen each bolt by 1/4 circle, and remove them after all of them are loosened.



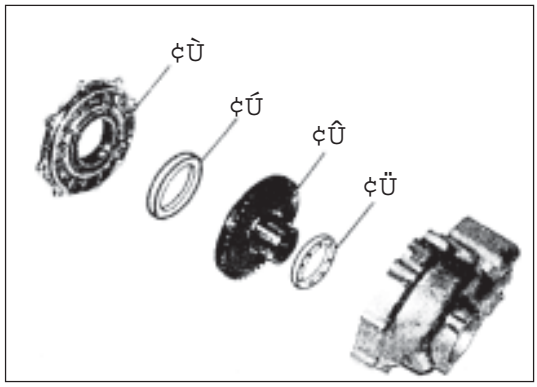
b. Disassemble:

1)Rear driving gear case body ¢Ù

2)Annular gear pad ¢Ú

3)Shift gear ¢Û

4)Thrust plain pad¢Ü

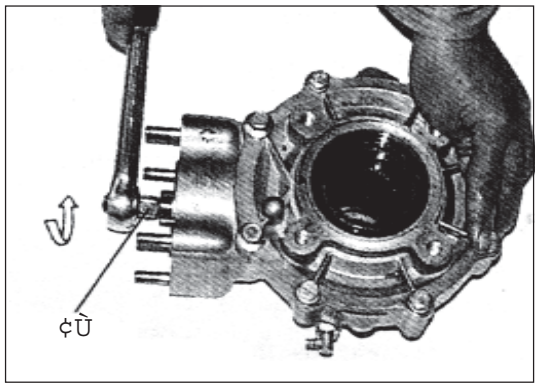


c.Disassemble:

Bearing gasket(transmission shaft-last grade)

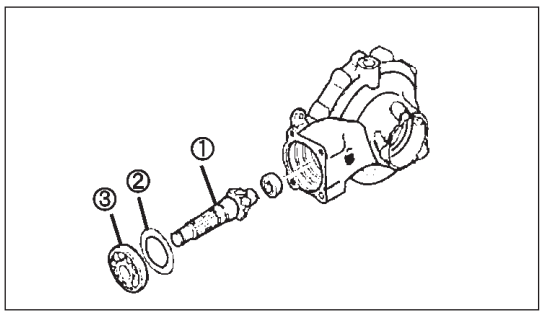
Caution

There are left handed thread on the bearing gasket. Rotating it clockwise may loosen the bearing gasket.



Caution

When reinstalling the bearing gasket, use special wrench ¢Ù

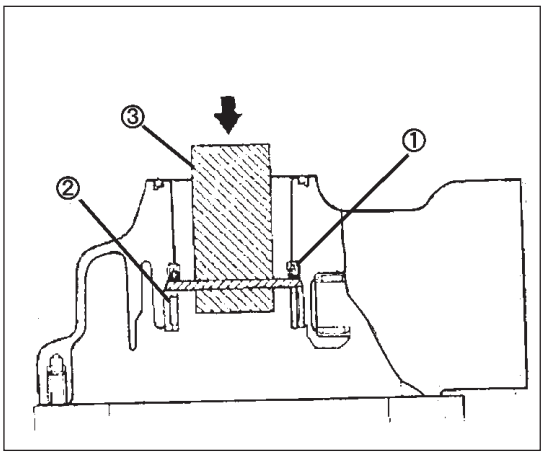


d.Disassemble

Tap the main driving gear lightly with soft hammer,and remove the main driving gear¢Ù (with thrust pad ¢Úand bearing ¢Û)

Caution

If it is necessary to replace ace the gear, should remove the main driving gear firstly. Do not use the original bearing thrust pad. Replace them.

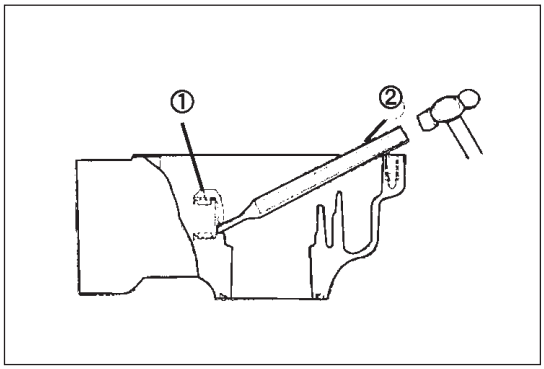


e.Disassemble:

1)Oil seal ¢Ù

2)Bearing ¢Ú(shift gear)

Use proper pressure assemble tool ¢Ûto rear driving gear case, and support it properly.



f.Disassemble:

Bearig ¢Ù(main driving gear)

disassembling procedures:

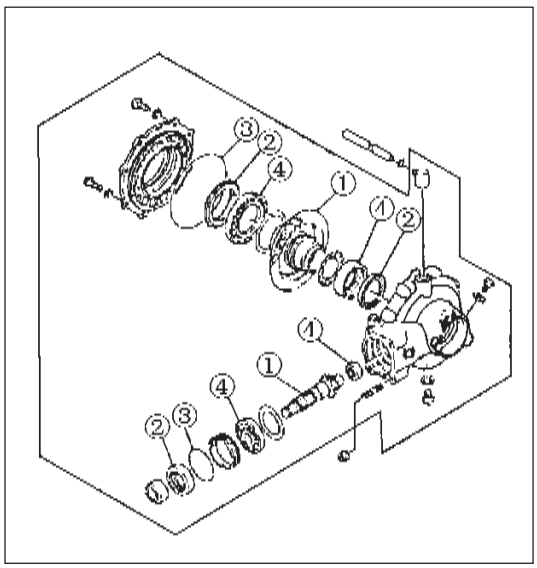
1)Warm the rear driving gear case to 150¡æ

2)Remvoe the outer circle of bearing with a proper punching pin¢Ú

3)Remove the inner circle of bearing of main driving gear.

Caution

It is very difficult to remove the inner circle of the main driving gear bearing. In general it is unnecessary to remove it.



(V)Inspection

1.Check the gear teeth of bevel gear pair ¢Ù Cave/scratch /wear ¡úreplace the main driving gear and shift gear in set

2.Check oil seal ¢Ú

3.Check O-ring ¢Û

If damaged, replace it.

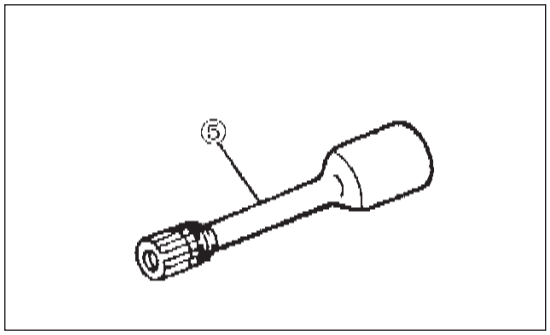
4.Check the bearing ¢Ü

If damaged, replace it.

Caution

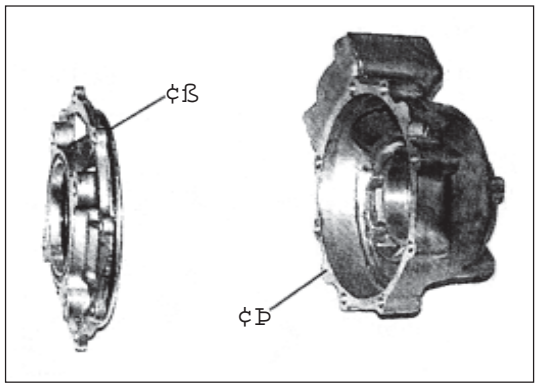
ⓐ The bearing can be used repeatedly. But advise you to replace it.Don't use the oil seal repeatededly.

ⓑ When replacing the main driving gear and (or)shift gear be sure to adjust them. Refer to "Pad choice of main driving gear and shift gear"of this section.



5.Check the transmission shaft¢Ý(spline)

If worn or damaged, replace it.

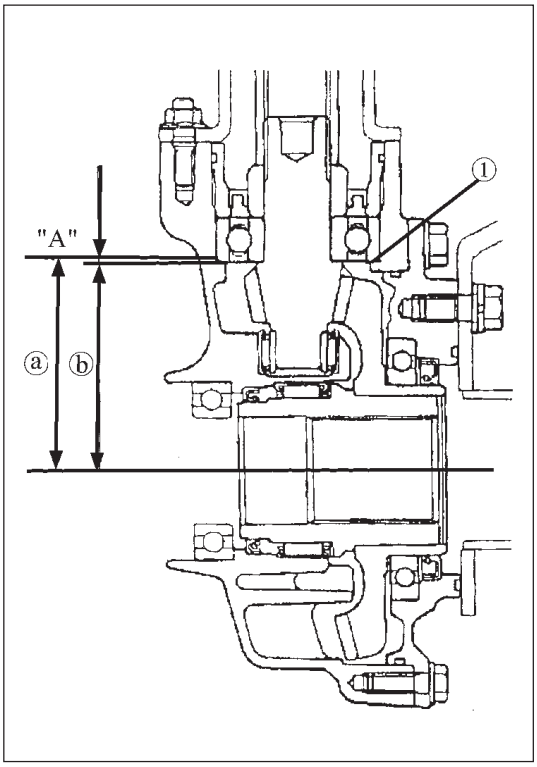


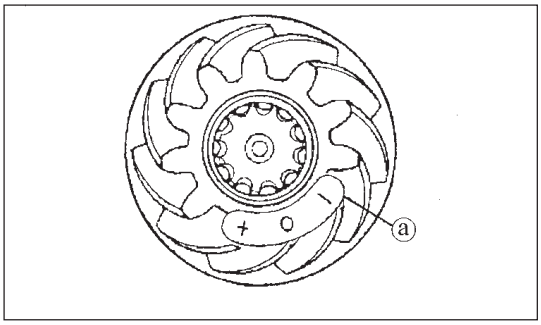
6.Check the driving gear case body ¢Þand driving gear case cover ¢ß

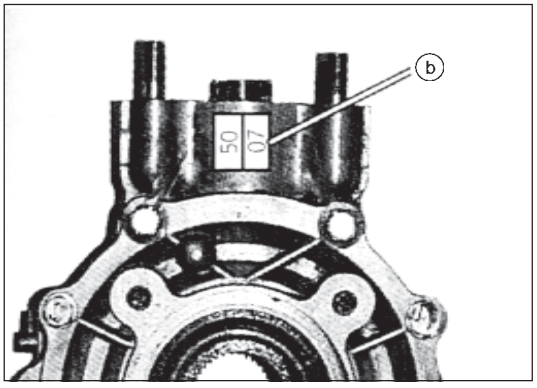
If there is crack or damage, replace them.

Caution

When replacing the driving gear case body and cover, be sure to adjust the pad of main driving gear and shift gear, Refer to "Pad choice of main driving gear and shift gear"of this chapter.







(VI)Pad choice of main driving gear and shift gear

1.Choice of main driving gear pad:

Work out the main driving gear pad thickness“A”= ⓐ - ⓑ

ⓐ =84 add or subtract the number engraved on the main driving

ⓑ =83.5 add or subtract the number engraved on the driving gear case body.

Caution

The unit of all the numbers engraved on the main driving gear and driving gear case body is 1/100mm.

For example:

1)If on the main driving gear engraved“+01”

ⓐ =84+0.01=84.01

1)If on the driving gear case body engraved“10”

ⓑ =83.5+0.01=83.60

3)So:“A”=0.41

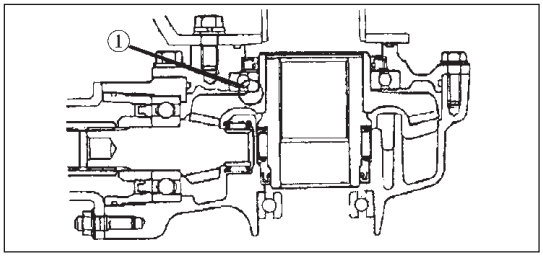
4)Amend the percent digit and chose proper pad.

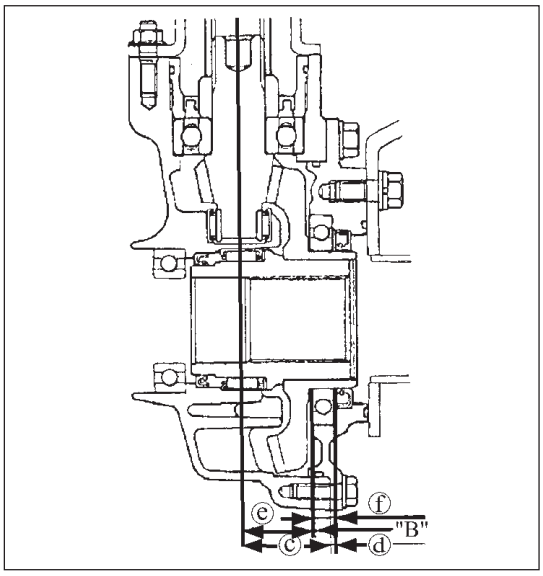
In above example, the resulted value is 0.41, but the meter indicates to amend 1 of percentage digit to 0,so the pad thickness is 0.40mm.

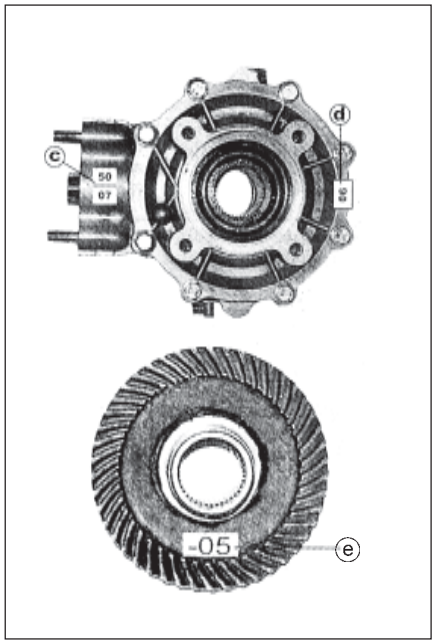
Number on percent digit	Amending value
0,1,2	0
3,4,5,6,7	5
8,9	10

The pad has following thickness.

Main driving gear pad		
Thickness mm	0.15	0.50
	0.30	0.60
	0.40	







2.Choice of shift gear pad

Shift gear pad ¢Ù

Chosing procedures:

Work out the pad thickness “B”front following formula

“B”= ⓒ +ⓓ - ⓔ + ⓕ

=45.5adds or subtracts the number engraved on the driving gear case body.

=1 adds or subtracts the number engraved on the driving gear case cover.

=35 adds or subtracts the number on the shift gear

=bearing thickness(regarding unchangeable)=“11.00mm”

For example:

1)The number engraved on the driving gear case body is “0.7”

=45.5+0.07=45.57

2)The number engraved on the driving gear case cover is “06”

=1+0.06=1.06mm

3)The number engraved on the driving gear case cover is “-05”

ⓔ=35-0.05=34.95

4) ⓕ11.00

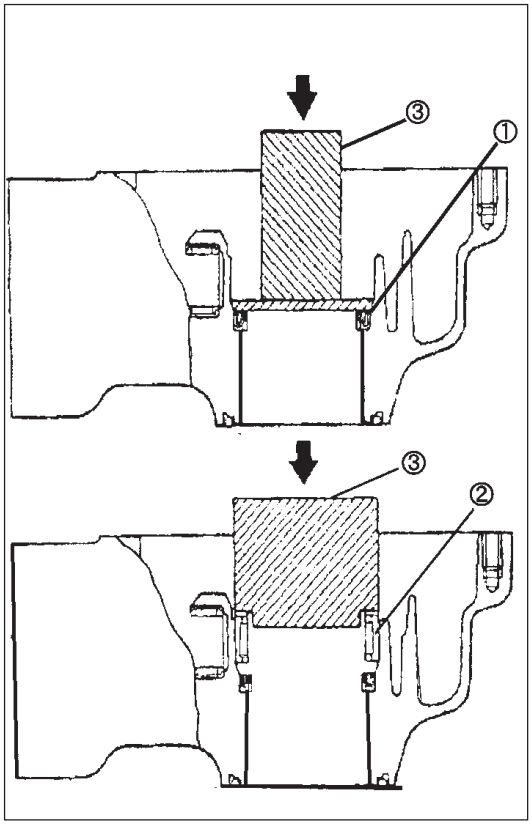
5)So the pad thickness “B”

“B”=(45.57+1.06)-(34.95+11)=0.68

Number on percent digit	Amending value
0 ¡ ¢1 ¡ ¢2	0
3 ¡ ¢4 ¡ ¢5 ¡ ¢6 ¡ ¢7	5
8 ¡ ¢9	10

The pad has following thickness.

Main driving gear pad		
Thickness mm	0.25 0.30	0.40 0.50



(VII)Installation:

The procedure is the reversal of "disassembly".But pay attention to following points:

1.Install the needle bearing(small)on main driving gear:

Procedures:a.Warm the case body to 150¡æ

b.Assemble the out circle of needle bearing with proper holddown.

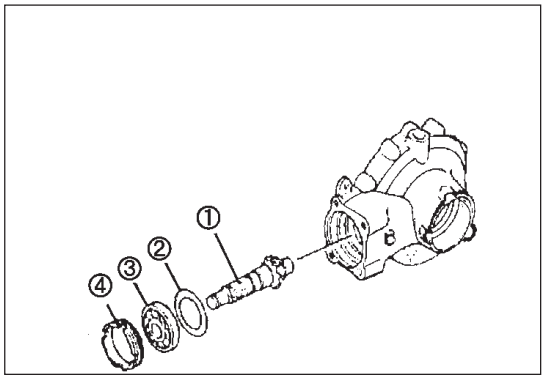
c.Install the inner circle of the needle bearing onto the shift gear.

2.Install oil seal¢Ù

3.Install the outer circle of the needle bearing (bigger) ¢Úof shift gear onto the driving gear case body.

Warning

Must use new oil seal



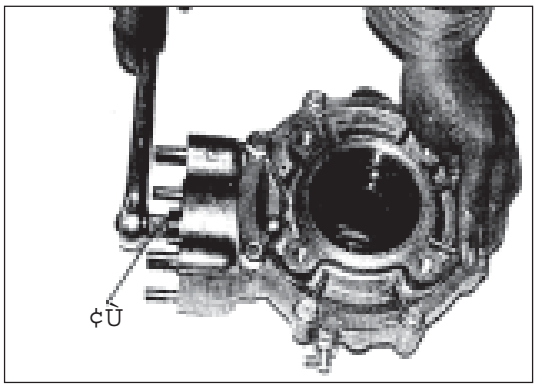
4.Install main driving gear ¢Ùpad ¢Úand bearing¢Û and install bearing gasket¢Ü Calculate the size of pad.

Caution

ⓐ The bearing gasket is left handed, so tighten it up by rotating counter clockwise.

ⓑ Before installing the bearing gasket, apply grease on O-ring.

ⓒ When installing the bearing gasket, tighten it with special tool.

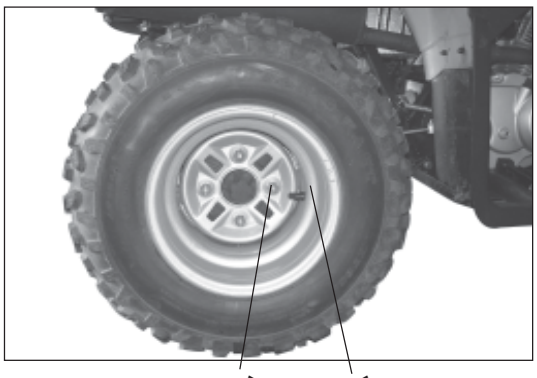


Section 2 Front wheel and Front Brake

Technical Parameter

Ser No.	Item		Parameter
1	Tire specification		AT22 ¡Á7-10
2	Rim dimension		5.5 ¡Á10
3	Tire air pressure(normal temperature)	Standard value	20KPa(Standard value)
		Min value	17KPa(Min vlaue)
		Max value	23KPa(Max value)
4	Run-out	Radia run-out	2mm
		End face run-act	2mm
5	Tire wear limit value		2mm
6	Wear limit value of friction wafer		2mm
7	Wear limit value of front brake hub		16mm

¢Ù



¢Ù ¢Ú

(I)Disassembly

1)Pay attention to following points when disassembling front wheels

a:Place the vehicle on a horizontal ground, and press down the rear brake attaching clamp¢Ù

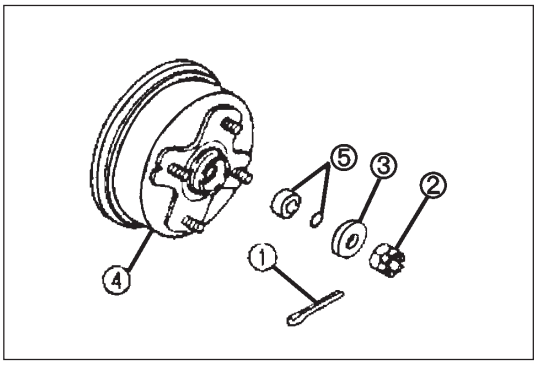
b.Loosen the connecting nut¢Ùof front &rear wheel on the front wheel.

c:Place a bracket under the frame to pick up the front wheels.

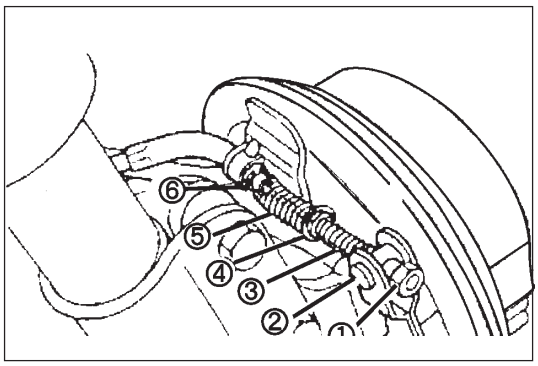
Warning

Support the vehicle firmly and avoid dropping down.

2)Disassemble the connecting nut ¢Ùof front &rear wheel.

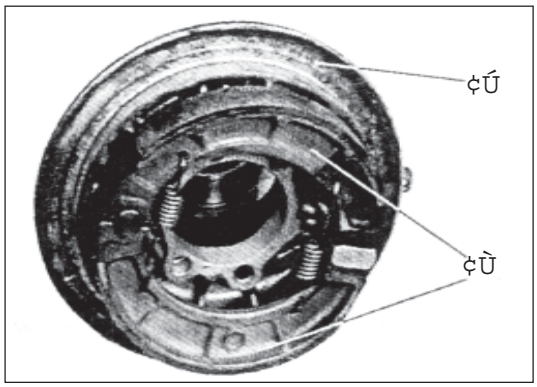


3)Disassmeble split pin¢Ù slotted nut¢Ú plain washer ¢Û front brake ¢Ü and gasket ¢Ý.

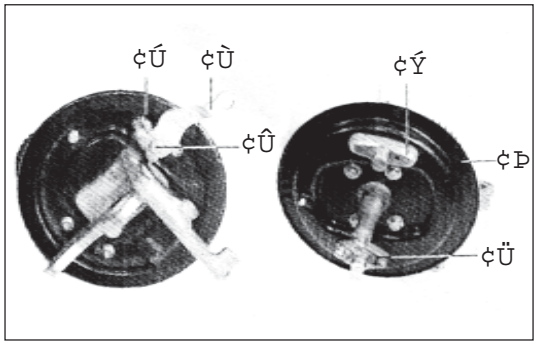


4)Disassmeble adjusting nut¢Ù pin¢Ú spring ¢Û circlip ¢Ü spring ¢Ý and circlip ¢Þ

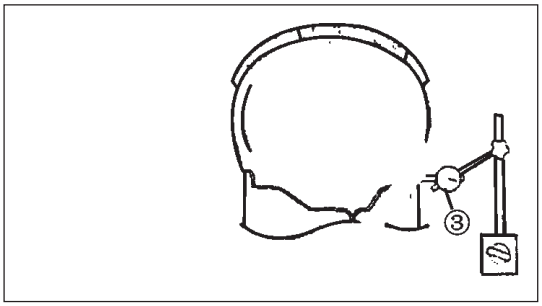
5)Remove the front brake cable and front brake air pipe.

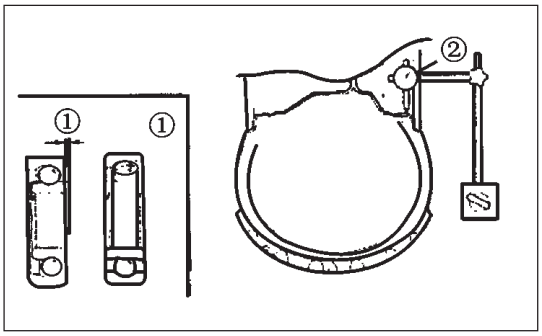


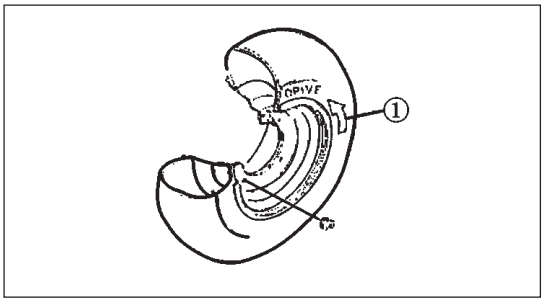
6)Disassemble brake shoe assy ¢Ù and front cover assy ¢Ú

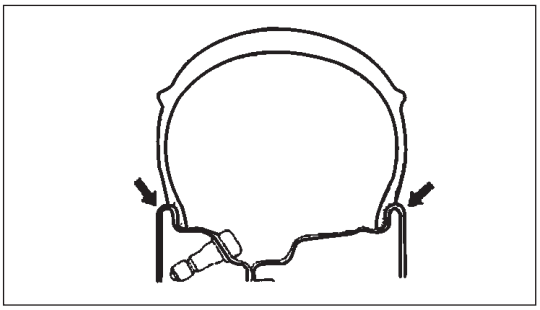


7)Disasssemble
¢ÙFront brake arm ¢Ù
¢ÚWear indicating sheet ¢Ú
¢ÛFront brake cam shaft ¢Û
¢ÜFront brake cam shaft seat ¢Ü
¢ÝRotating pin seat assy ¢Ý
¢ÞBrake cover ¢Þ









II.Inspecting procedures

1.Check

Front wheel:refer to “Tire inspection”and “Hub inspection”of chapter2.

2.Measure

Radial run-out of front wheel:If exceeding the specified limit, replace the front wheel or check the bearing clearance(¢Ùin figure)

Attached:Rim run-out limit:

Radial run-out 2.0mm(¢Úin figure)

End face run-out 2.0mm(¢Ûin figure)

3.Check:

Tire surface:If worn or damaged, replace it.

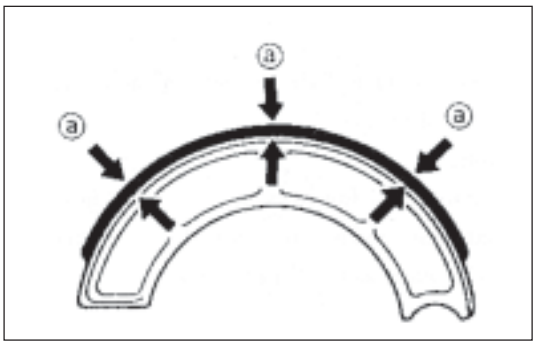
Refer to “Tire inspection”of chapter2.

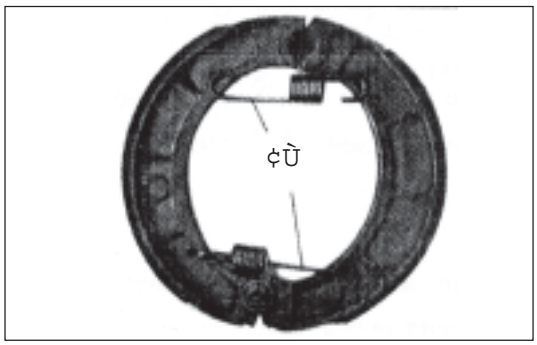
Caution

Install the tire according to direction ¢Ùof “ROTATION”mark on the tire.

Warning

The tire assembly should be conducted on special equipment. After replacing the tire, conduct curvilinear motion carefully. Must ensure the tire on the correct position in rim. Otherwise may cause damgage of motorcycle or driver.





4.Check

Friction wafer:polish the surface needing polishment with rough sand paper.

5.Measure

Thickness of friction wafer of brake: if it does not conform to specified thickness, replace it .

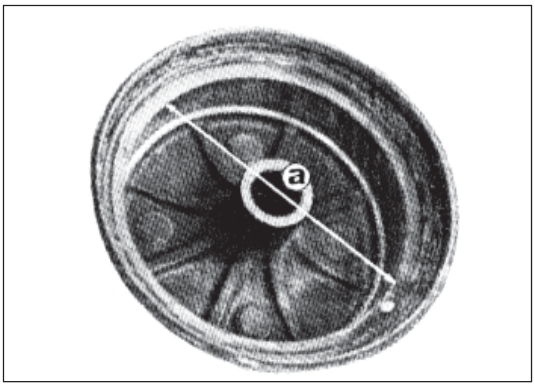
Attached:

Thicknes of friction wafer of brake:4.0mm

Wear limit :2.0mm

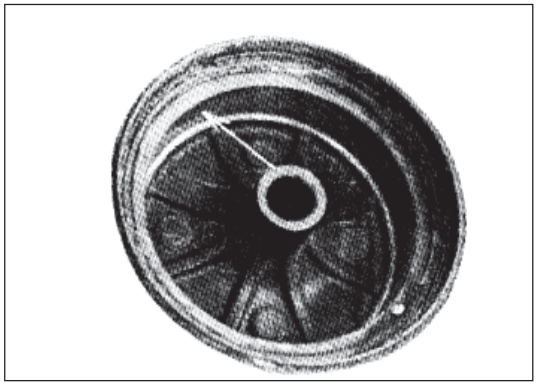
Caution

If the worn thickness of any part of friction wafer exceeds the wear limit specification, it is needed to replace the brake shoe in set. (including brake shoe spring¢Ù)



6.Check

Brake shoe tension spring ¢ÙIf worn or damaged, replace it.



7.Measure:

Inner diameter of front brake hub (@as shown in figure):

If it does not conform to specification,replace it .

Attached:

Inner diameter of front brake hub:160mm

Wear limit:161mm

8.Check

If there is engine oil or scrape on the inner surface of brake hub, eliminate them.

¢ÙElimination of engine oil :wipe off with cloth immersed in volatile diluent or volatile solvent.

¢ÚElimination of scrape:wipe it off with carborundum cloth forcedly and evenly until it disappears.

9.Check
¢ÙIf the bearing ¢Ùof front brake hub runs out in brake hub or front wheel runs out when rotating, replace the bearing.
¢ÙIf the oil seal ¢Ùis worn or damaged, replace it.

¢ÙReplacing procedures of front wheel bearig and oil seal
Wash the outer side of brake hub
¢ÙRemove the oil seal ¢Ùwith plain screw driver.

Caution

When removing the oil seal with plain screwdriver, place a cloth on the outer edge of oil seal to avoid damage¢Ú

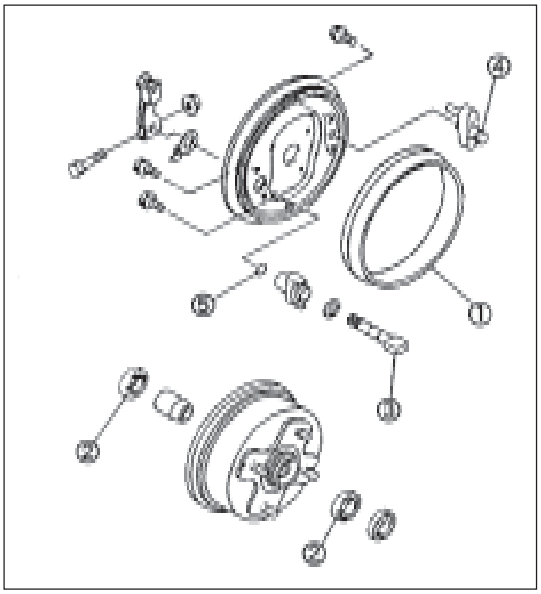
Disassemble the bearing ¢Ùwith corresponding tool.
Assemble new bearing and oil seal according to reverse procedures of above replacement.

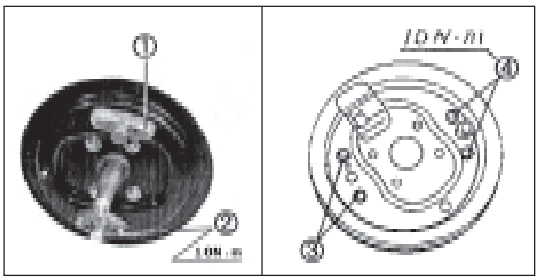
Caution

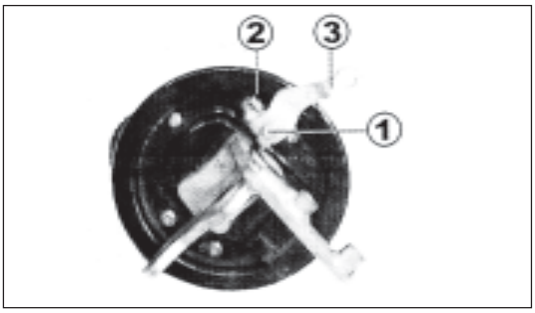
Use a holddown ¢Ücorresponding with out-side diameter of oil seal.

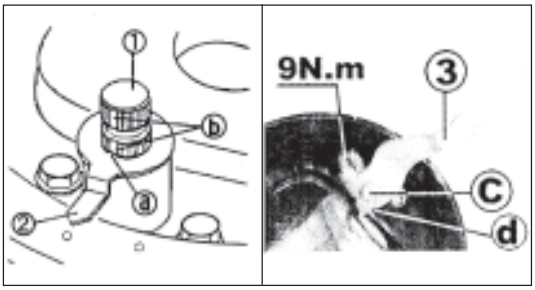
Caution

Do not beat the inner circle of bearing or roller , only contact the holddown and outer circle.
10.Check
¢ÙIf there is crack or damage on brake cover assy ¢Ú replace it.
¢ÙIf the dust-proof seal of brake cover ¢Ùis worn or damaged, replace it.









(III)Installation procedure:

The installation procedure is the riversal of “Disassembly ”.But pay attention to following points:

1.Lubrication:as shown in figure:

¢ÙDust-proof seal

¢ÚBearing

¢ÛCam shaft

¢ÜRotating pin seat

¢Ý“O”sealing ring

Attached:use lithum base grease

Warning

When installing the cam shaft and rotating pin seat, should apply a little grease firstly. After installation, wipe off the surplus grease.

2.Install

¢ÙRotating pin seat

¢ÚCam shaft seat

3.Install:

¢ÙBrake cam shaft

¢ÚIndicating sheet

¢ÛBrake cam arm

Caution

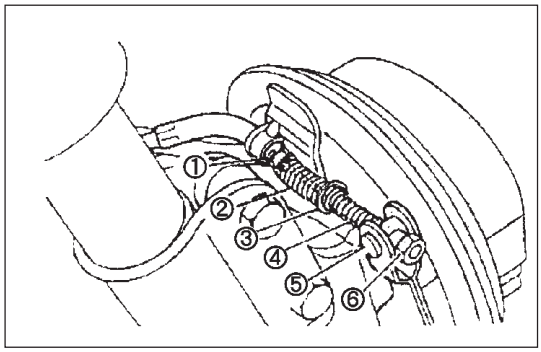
When installing the friction indicating sheet ¢Ú onto the brake cam shaft ¢Ù should make the convext part (@)of friction indicating sheet corresponding with concave part (ⓑ)of brake cam shaft.

Make the punching mark ⓒ on brake cam shaft ¢Ùcorresponding with punching mark ⓓof brake cam arm.

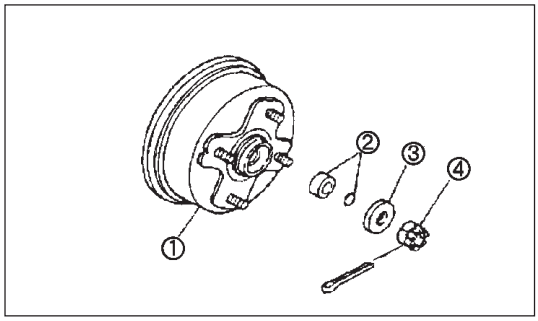
4.Install
Brake shoe assy

Do not apply lubricating grease on brake friction wafer.

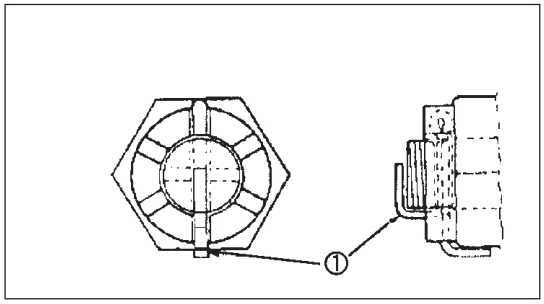
5.Connect
a.front brake air pipe.
b. connect the front brake cable with brake cover.



6.Install (as shown in figure)
¢ÙCirclip
¢ÚSpring
¢ÛCirclip
¢ÜSpring
¢ÝPin
¢ÞAdjusting nut



7.Install(as shown in figure)
¢ÙFront brake hub
¢ÚGakset, O-ring 17 ¡Á1.8G
¢ÛWasher
¢ÜSlotted nut (torque:70N.m)



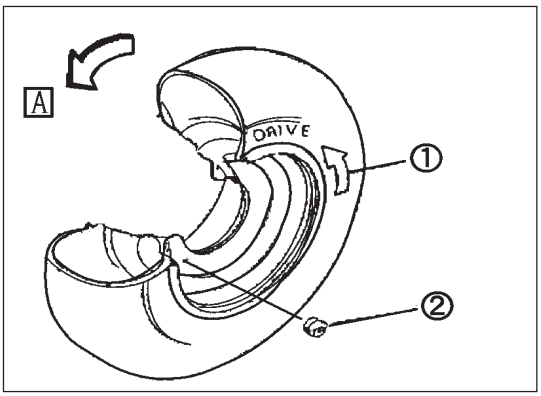
8.Install
¢ÙSplit pin

Caution

After the torque is fixed, do not loosen the slotted nut. If the concave slot of the slotted nut does not aim at pin hole of the screw column, aim them by tightening up the soltted nut.

Warning

Should use new and complete split pin.



9.Installment:

When installing the front wheel¢ù the fastening torque of connecting nut¢Úof front and rear wheels is 55N.m.

The rotation direction of front wheel (A) is the arrow direction marked on the tire.

10.Adjustment

Free clearance of front brake cable

Refer to the “Adjustment of front brake”section fo chapter Two.

Free clearance of front brake:

The free clearance on the center of right lever is 5.0-8.0mm.

11.Loosen the brake clip.

Section 3 Rear wheel/rear brake/rear wheel axle

Technical Parameter

Ser No.	Item		Parameter
1	Tire specification		AT22 ¡Á10-10
2	Rim dimension		8.5 ¡Á10
3	Tire air pressure(normal temperature)	Standard value	25KPa(Standard value)
		Min value	22KPa(Min vlaue)
		Max value	28KPa(Max value)
4	Run-out	Radia run-out	2mm
		End face run-act	2mm
5	Wear limit of tire		2mm
6	Wear limit of friction disk		2mm
7	Rear brake hub wear limit		161mm

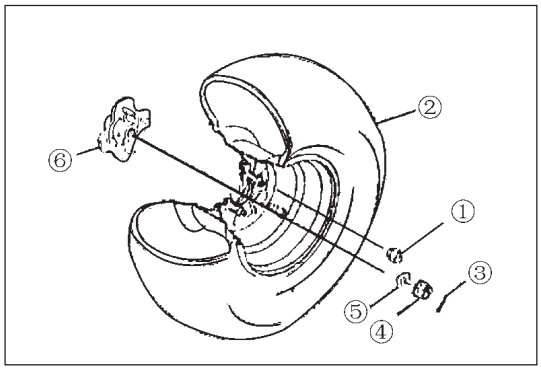
¢Ù

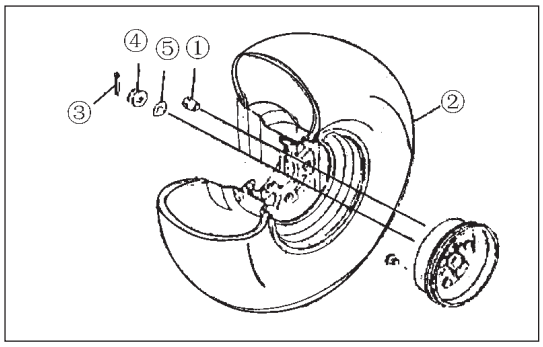
(I)Removal steps

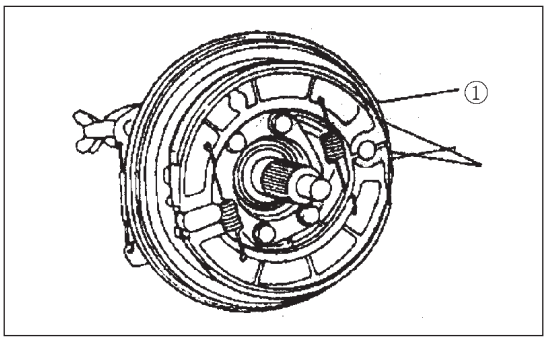
1.Rest the motorcycle on a flat ground.Press the rear brake clip ¢Ù

2.Loosen the connecting nuts of front and rear wheels.

3.Stop up the front wheel with wood, then put a proper supporting article under the frame so as to lift the rear wheel and make the rear wheel leave the earth.







In order to avoid the parts falling, which will cause danger, during romoval process, rest the vehcile firmly.

4.Removal (the Ser. No is corresponding to the Ser.No on the drawing)

¢Ùconnecting nut of front and rear wheels

¢ÚLeft rear wheel

¢ÛSplit pin

¢ÜRear wheel axle nut

¢ÝWasher

¢ÞRear wheel connecting plate

5.Removal (the Ser.No is corresponding to the Ser. No on the drawing)

¢ÙConnecting nut of front and rear wheels

¢ÚRight rear wheel

¢ÛSplit pin

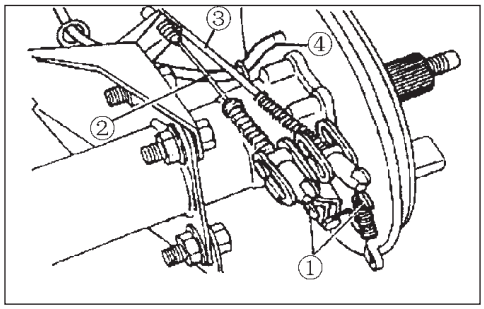
¢ÜRear wheel axle nut

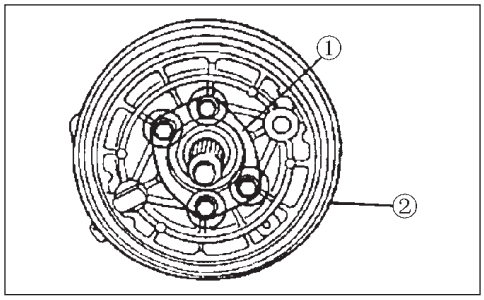
¢ÝWasher

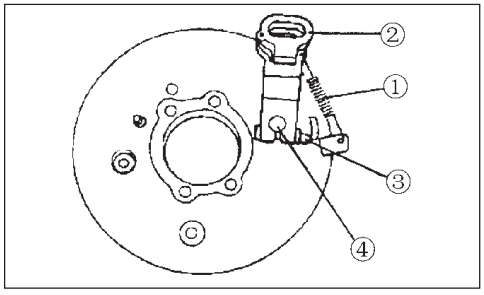
6.Loosen the rear brake clip

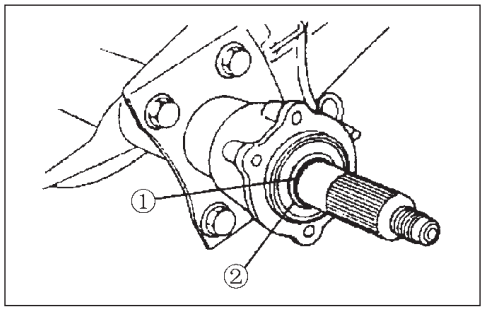
7.Removal:

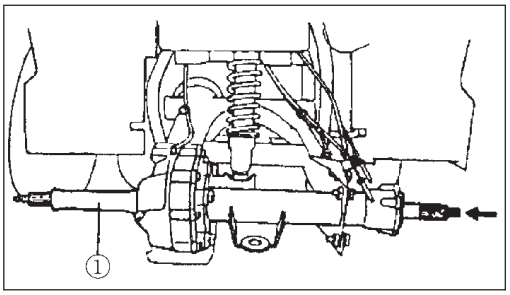
Brake shoe assy ¢Ù











8.Removal:(the ser.No as shown on the drawing)

¢ÙAdjusting nut, pin and spring of rear brake arm and rear brake tension rod assy.

9.Removal:

¢ÚRear brake calbe

¢ÛRear brake Tension rod assy

¢ÜAir pipe of rear brake

10.Removal:

¢ÙRear brake bearing block

¢ÚRear brake hub

11.Removal:

¢ÙTension spring

¢ÚRear brake arm

¢ÛBrake indicating plate

¢ÜRear brake cam shaft

12.Removal:

¢ÙO-ring

¢ÚPlain pad of rear brake cover

13.Removal:

¢ÙRear wheel axle:Beat the right end of the rear, wheel axle slightly, pull the rear wheel axle from left end.

Caution

Take out the rear wheel axle from the end of rear wheel axle bushing and gear box with soft hammer.

Warning

During taking out the rear wheel axle, in order to protect the thread and gear grouve from damage, do not beat the rear wheel axle directly with hammer.

(II)Inspection steps:

1.Inspection

When inspecting the real wheel, refer to “tire Inspection”,“Rim inspection”Section of chapter Two.

2.Measurement:

a.radial runout of rim

b.tire surface

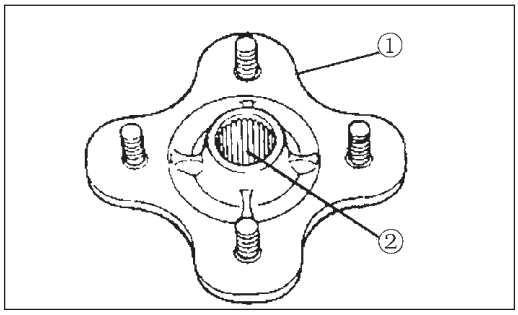
Refer to“Front wheel and Front Brake Inspection”Section of this chapter

3.Inspection

¢ÙRear wheel connection plate ¢ÚIf cracks or damage is found, replace it.

¢ÛInvolute spline on rear wheel connecting plate

¢ÛIf worn or damaged, replace it.



4.Inspection:

Friction plate of rear brake

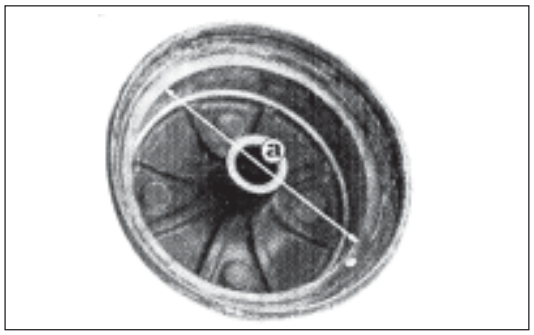
5.Measurement

Thickness of brake friction plate

See the “Front wheel and front brake inspection”Section of this chapter.

Attached:The thickness of brake friction plate is :4.0mm(0.16in)

<Wear limit>:2.0mm(0.08in)



6.Inspection

Tension spring of brake shoe

See the “Front wheel and Front brake Inspection”Section of chapter

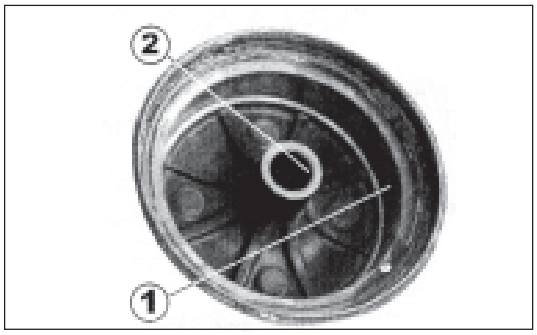
7.Measurement

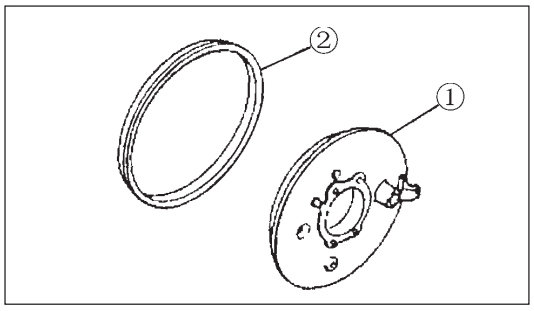
Internal diameter of rear brake hub@

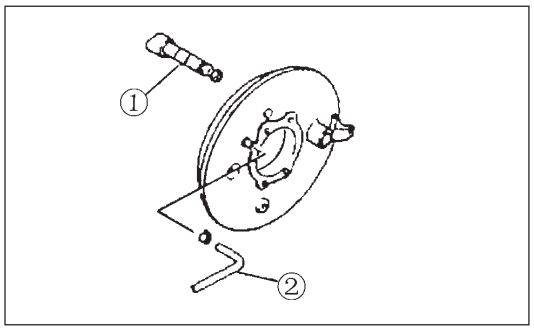
If out of the specification, replace the hub

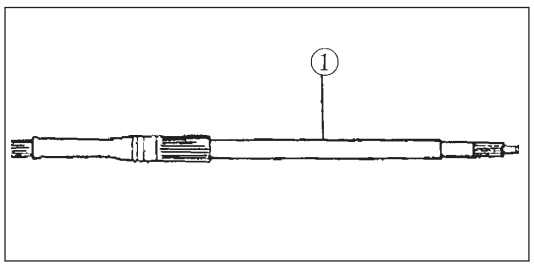
Attached:Internal diameter of rear brake hub: 160mm

<Wear limit>:161mm









8.Inspection(The Ser.No as shown on the drawing)

¢ÙInner surface of rear brake hub

If there is some engine oil or scraped markings, remove it and treat it ,the mothod of treat is as the follows.

Removal of engine oil:Clean with colth dipped in volatile diluent or volatile solvent.

Removal of scraped marking:Wipe slightly and with even force the scraped marking till to remove it.

¢ÚGear groove of rear brake hub

If worn or damaged, replace it.

9.Inspection

¢ÙIf there is some crakes, bend or damage on the brake cover, replace it.

¢ÚIf the dust-proof seal is worn or damaged, replace it.

10.Inspection

¢ÙIf there is worn scraped marking or damage on the cam shaft of rear brake, replace it.

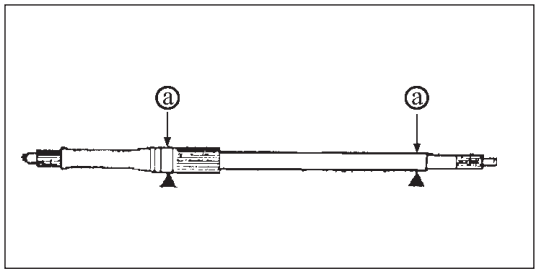
¢ÚIf the air pipe of rear brake is clogged, remove this pipe and clean the dirt, if damaged, replace it.

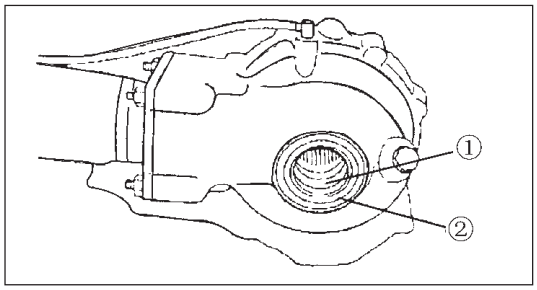
11.Clean the air hole on the rear brake cover with compressed air.

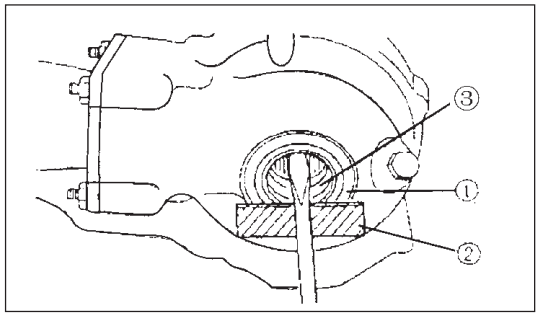
12.Inspection of rear wheel axle ¢Ù

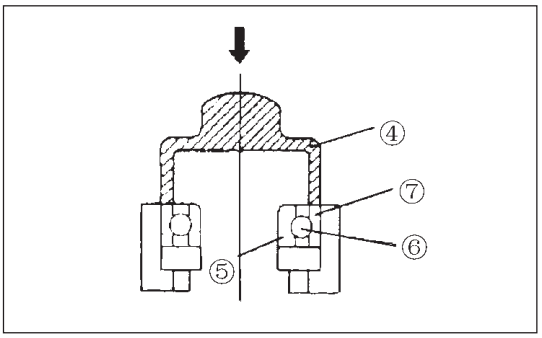
a:If the rear wheel axle is heavily scraped or broken, replace it.

b.If the thread or gear groove on the rear wheel axle is worn or damaged, replace it.









13.Measurement
The radial runout of the pisition @on the rear wheel axle, if out of specification, repalce it.

Attached:The radial runout limit of rear wheel axle:1.5mm

Warning

If the axle is bent, do not straighten it forcefully.

14.Inspection:
¢ÙBearing on the rear wheel axle
Rotate the rear wheel axle, if the axle shakes left and right in the bearing or runout axially, It indicated that the bearing is heavily worn needing to be replaced.
¢ÚIf the oil seal is worn or damaged, replace it.
Replacement steps of bearing and oil seal:
a.Clean around the bearing of gear case end.
b.Remove the oil seal ¢Ùwith plain screwdriver.

Caution

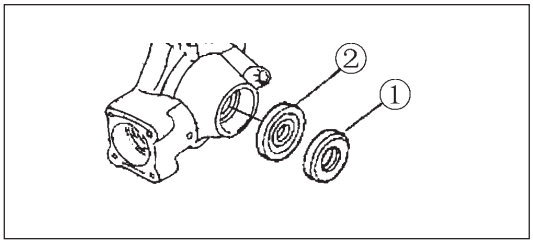
In order to protect the oil seal out edge from damage during the removal process, place a wood block ¢Úunder the screwdriver.
Remove the bearing ¢Ûwith corresponding tool.
The installment of new bearing and oil seal is in reverse.

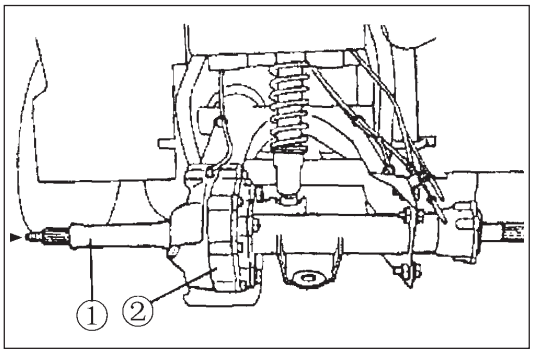
Caution

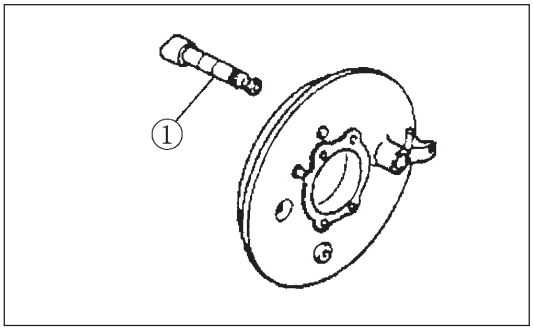
During the installment, the pressing tool of bearing ¢Üshould be matched with the outer diameter of bearing outer race ¢ßand that of oil seal.

Warning

Never beat the inner race ¢Ýand bearing ball ¢Þ, the pressing tool needs to touch with bearing outer race ¢ß.







(III)Installment steps:

The reversal steps of “removal steps”,that is installment steps.Pay attention to the following points when installing:

1.Lubrication part

¢ÙOil seal lip of rear wheel axle.

¢ÚBearing of rear wheel axle.

The corresponding spline tooth of rear wheel axle.

The lubrication oil is lithium base grease.

2.Installment

Installment of rear wheel axle ¢Ù

Caution

Before installing the rear wheel axle, loosen all bolts on the driving gear case ;hole the rear wheel axle with hand to make it enter the rgear groove of gear case, apply on the left end of the axle slightly with soft hummer.

Warning

In order to protect the axle thread and spline tooth of axle, never beat the end face of axle directly with hummer.

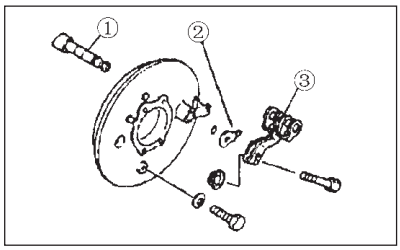
3.Installment

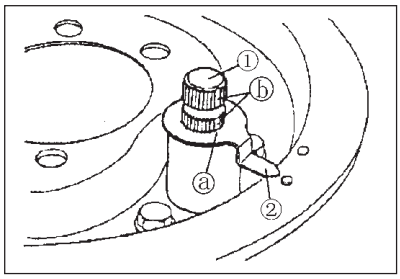
Plain pad of rear brake cover

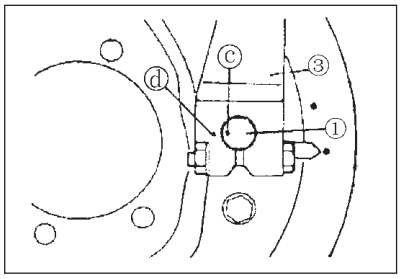
O-ring 30 ¡Á1.8G

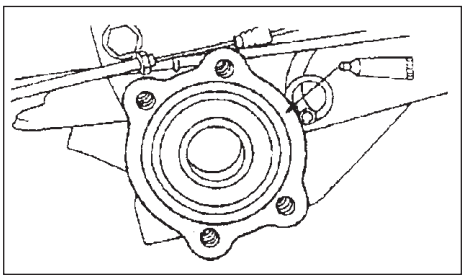
4.Labrication of rear brake cam shaft.

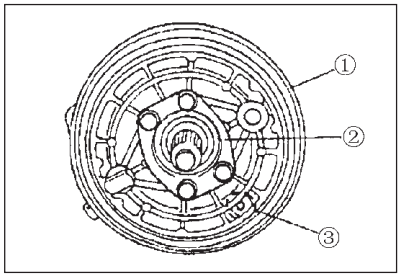
The lubrication oil is lithium base grease.











5.Installment

¢ÙCam shaft of rear brake ¢Ù

¢ÚIndicating plate of brake ¢Ú

¢ÛRear brake arm assy ¢Û

Caution

When installing the brake indicatinig plate¢Ú to rear brake can shaft ¢Ù,be sure to align the projective part@of brake indicating plate ¢Ú with the concave ⓑ part of rear brake cam shaft ¢Ù

At the same time, align the punch markⓒon the rear brake cam shaft with thatⓓof the rear brake arm assy ¢Û

The torque of rear arm assy:9N.m

6.Application

Sealing agent:Be suitable for the rear brake cover assy and rear wheel axle bushing surface.

Attached:Sealing agent:P/N:ACC-QUICK-GS-KT

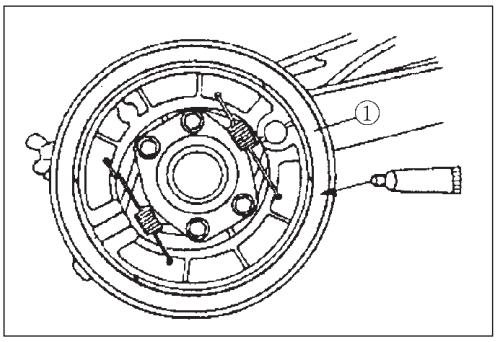
7.Installment

¢ÙRear brake cover assy ¢Ù

¢ÚBearing block of rear brake ¢Ú

Caution:

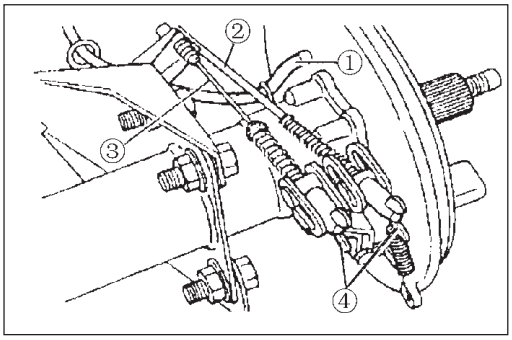
Install the rear brake cover with bolt ¢Û, the torque of bolt installment is :28N.m.



8.Installment
Barke shoe assy
9.Lubrication
Dust-proof seal
Lubrication oil for dust-proof seal:lithium base grease.

Warning

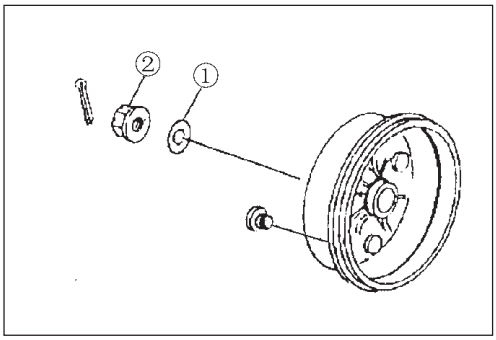
The lubrication oil is not allowed to be used for brake shoe assy, the lithium base grease is used for rear brake hub spline groove.



Warning

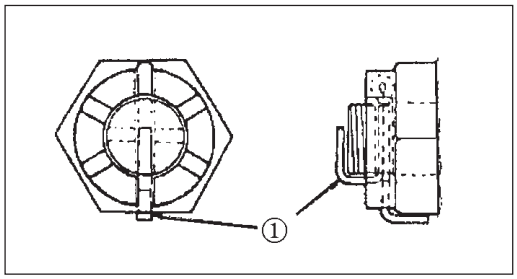
The lubrication oil is not allowed to be used for spline on the right end of rear wheel axle, otherwise, during the work ,the surplus lubrication oil will leave on the brake shoe, affecting the brake performance.

10.Installment:
Rear brake hub
11.Installment(The Ser No. as shown on the drawing)
¢ÙAir pipe ¢Ùof rear brake
¢ÚRear brake tension rod assy
¢ÛRear brake cable
12.Installment
Spring
Pin
Adjusting nuts ¢Üof rear brake tension rod assy and rear brake cable.



13.Installment
¢ÙWasher 16
¢ÚNut M16
14.Tighten up nut M16

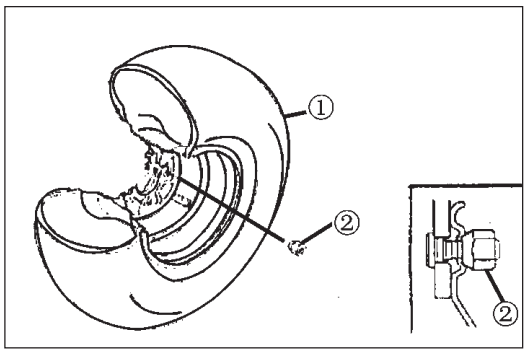
Attached: ¢ÚTorque of nut M16:150Nm



15.Installment
split pin4 ¡Á30 ¢Ù

Caution

After fastening the forque, the nut on the rear wheel axle is not allowed to be loose. If the nut concave groove is not align with the splint hole on the screw rod, make it by tightening up the nut.



Warning

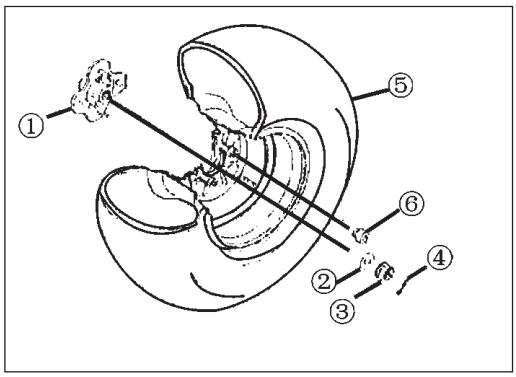
Always use the new split pin
16.Installment
Right rear wheel ¢Ù
Connecting nut of front and rear wheels ¢Ú
Attached:The torque of the connectinig nut of front and rear wheels is 55Nm.

Caution

The rotating direction of the wheel is the arrow marking direction on the tire. For this, refer to “Front wheel and front brake”section of this chapter.

Warning

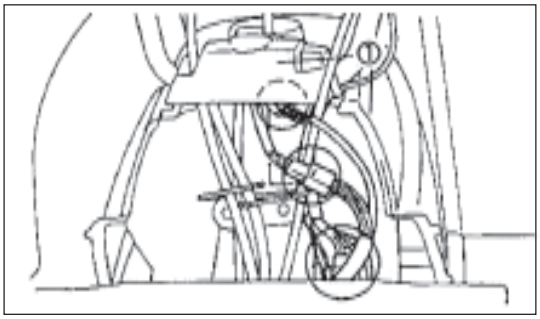
When installing the core nut to the rear wheel, be sure to face its core edge to the wheel.



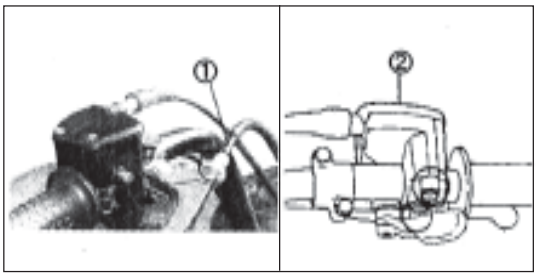
18.Installment
connecting plate of rear wheel ¢Ù
Wasehr 16 ¢Ú
Rear wheel axle nut M16 ¢Û
Split pin4 ¡Á30 ¢Ü
Left rear wheel ¢Ý
Connecting nut of front andrear wheels ¢Þ
Refer to “Rear wheel”section of this chapter.

19.Adjustment
Rear brake pedal clearance
Rear brake cable clearance
Refer to “Adjustment of left lever and rear brake pedal free clearance ”Section of chapter Two.
Attached:
Rear brake pedal clearance:20-30mm
Clearance of left lever centre:5.0-8.0mm

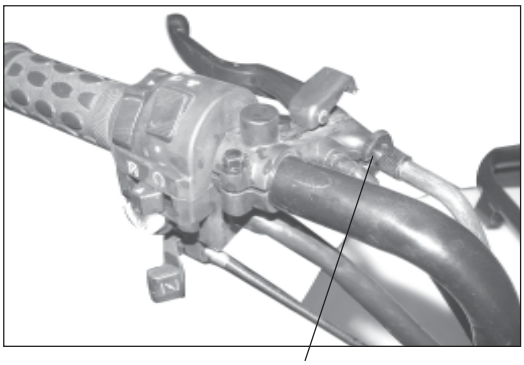
Section 3 Steering Operation System



(I)Removal steps of steering bar
1.Removal
Front luggage carrier
Bumper
Front fender
Refer to chapterTwo.Section Two

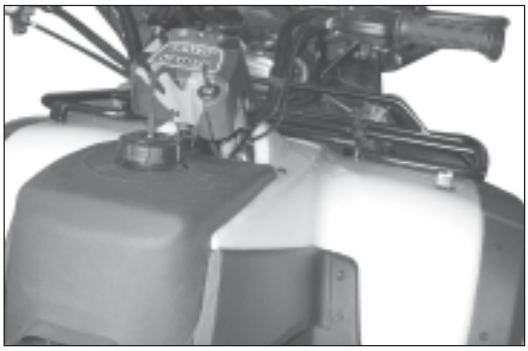


2.Removal
Main switch lock wire
“Neutral”indicating light wire
“Reverse”indicating light wire
“High beam”indicating light wire
Clutch switch wire
3.Removal
¢ÙFront brake cable
Remvoal
¢ÚThrottle grip assy

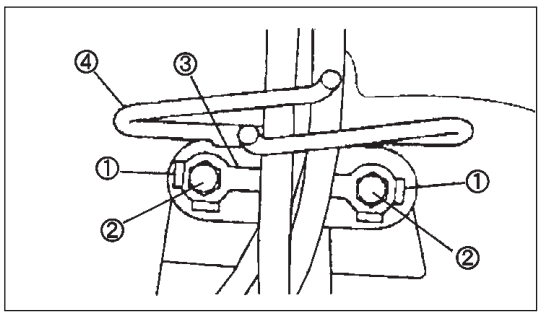


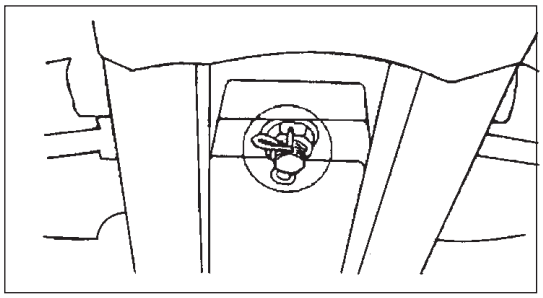
¢Ù

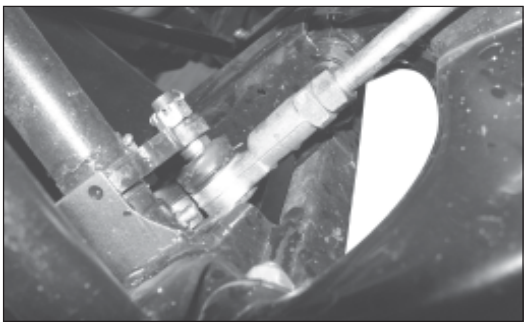
5.Removal
After stopping the vehicle, remove the rear brake cable ¢Ù

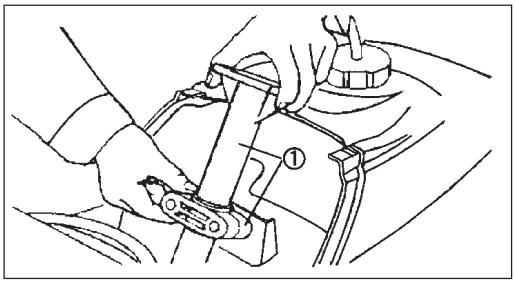


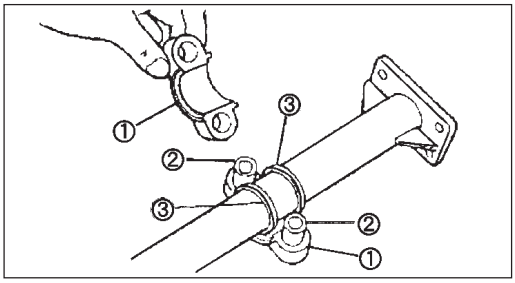
6.Removal
¢ÙSteering bar pipe
¢ÚLower holder of steering bar











(II)Removal steps of steering vertical column welding

1.Plain move

¢ÙThe locking part of locking pad as shown

2.Removal

¢ÚBolt M8 ¡Á60

¢ÛLocking washer

¢ÜClip assy

3.Remocal

Install the steering vertical column with split pin

2.25 ¡Á24

Nut M10

Washer 10

4.Removal

Split pin

Nut M12 ¡Á1.25

Tension rod ¢Ù

Caution

When removing the tension rod end and steering ball pin from the steering vertical column welding assy and front seat assy of front brake with common bearing tension tool and other tools, pay attention to not damage the relavent parts.

5.Removal

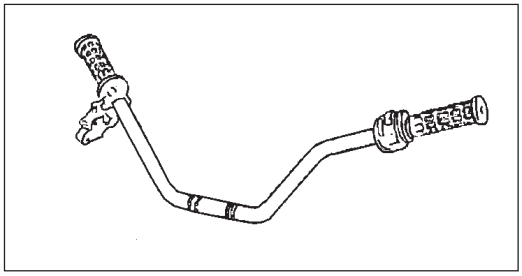
Remove the steering vertical column welding assy together with steering vertical column holder.

6.Removal

¢ÙSteering vertical column holder

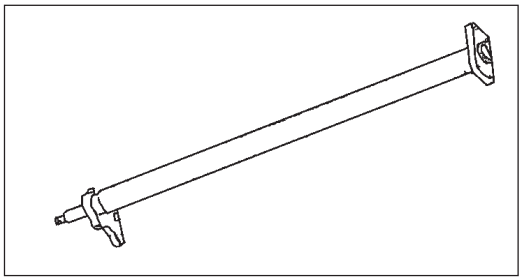
¢ÚBushing

¢ÛOil seal



(III)Inspection content

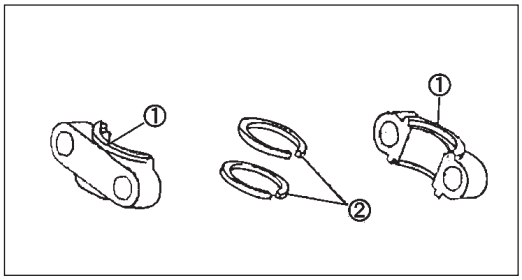
1.Check if the steering bar is cracks bent, is bent or damaged. If it is, replace it.



2.Inspect if the steering vertical column welding assy is bent or damaged. if it is, replace it

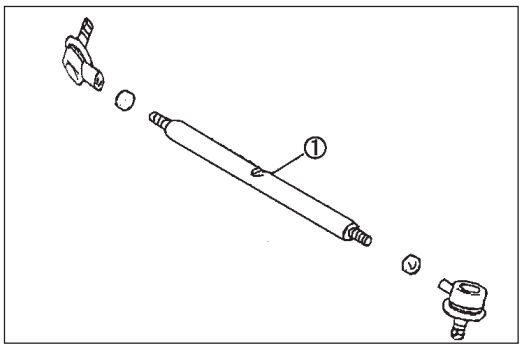
Warning

In order to avoid decreasing the performance of steering vertical column, if it is bent do not straighten it frocefully.



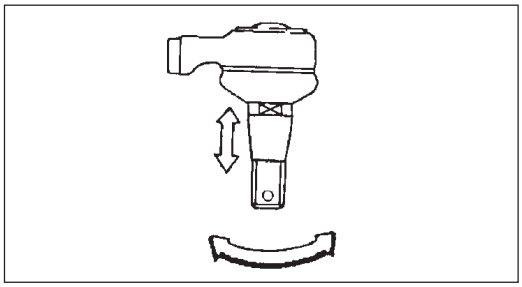
3.Inspection

Steering vertical column holder¢Ùand seal ring ¢ØÍ .If they are worn or damaged, replace it.



4.Inspection:

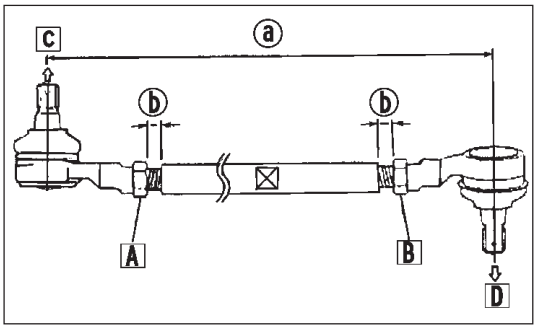
If the tension rod ¢Ùis bent or damaged. If they are, replace them.



5.Correcting:

The displacement of end head of steering tension rod ball pin assy(Refer to as pin ballas shown on the drawing).If the free clearance is found on the ball pin end head ,replace the ball pin. If the part around the ball pin end head is uneven, also replace it.

If there is convex point, wear, damage on the core surface of ballpin end head, replace it.



6.Adjustment

Assembly length of tension rod

Adjustment steps of tension rod assembly length

Loosen the connecting nut (A).(B)

Adjusting the assembly length of tension rod by rotating the tension rod.

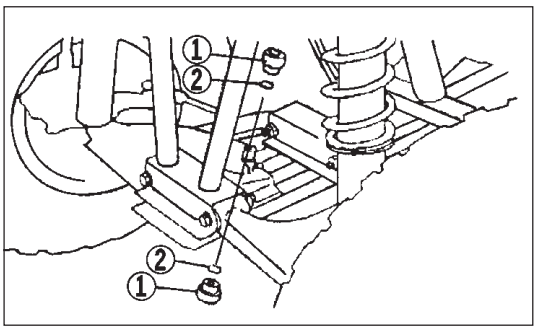
Attached:Tension rod assembly length @: 297mm

(A)Right-hand thread

(B)Left-hand thread

Connect (C)position to the steering vertical column welding assy.

Connect (D)position to the front seat assy, the front brake.



Caution

The connection nut (A)(B)can be tightened up only when the revealed thread length ⓑ of two ends of tension rod are the same.

Attached:Connecting nut torque of tension rod: 30Nm

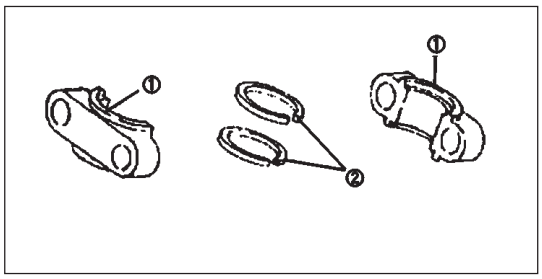
7.Inspection

If the bearing ¢Ù and O-seal ¢Ú under the steering vertical welding are worn or damaged, replace them.

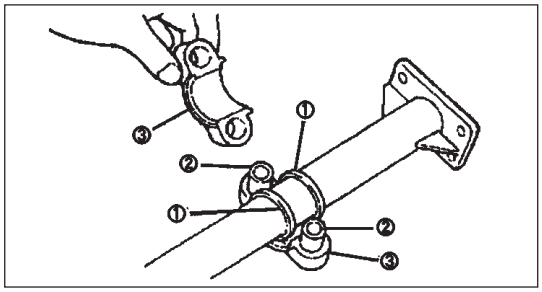
(IV)Installment steps

The reversal steps of "Removal"steps "Installment"steps, pay attention to the following points during installment.

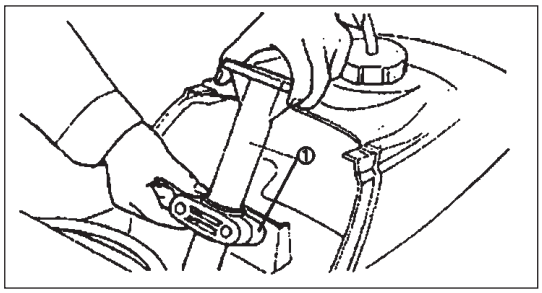
1.When installing steering vertical column welding, lubricate the bearing ¢Ù and seal ring ¢Ú under the steeing vertical column welding.



2.Lubricate the steering vertical column holder ¢Ùand seal ring ¢Úduring installing the steering vertical column welding.



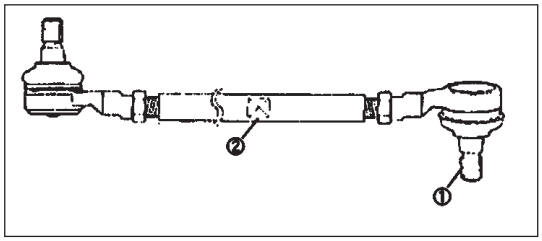
3.Installment
Install the seal ring ¢Ùto the steering vertical column welding, then install bushing¢Ú, finally install the steering vertical column holder¢Û
Caution:
Never damage the seal ring when installing.



4.Installment
When installing the steering vertical column holder and steering vertical cotumn welding take them as unit ¢Ù

Warning

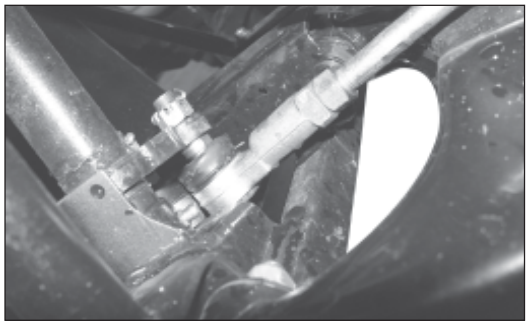
In order to ensure the correct circuit of brake cable and wire, never damage and wind the cables and wires.



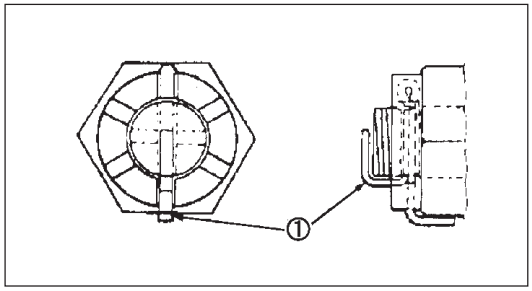
5.Insatllment of left and right tension rod¢Ú

Caution

Make sure that the ball pin ¢Ùat the side of scraped marking connect with the front seat assy of front brake.



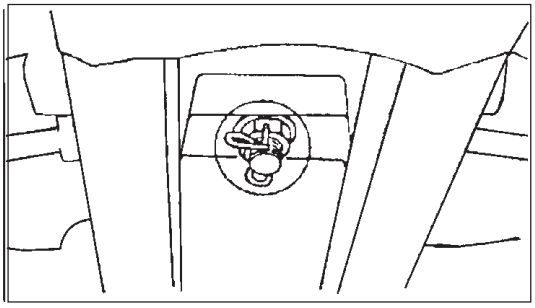
6.tighten up the nut ¢Ùof ball pin assy.
Attached:Nut torque :25Nm



7.Mounting split pin¢Ù

Caution

Don't loosen the nut after the torque is fixed. If the nut recess is not correspondance with split pin hole on the double -screw bolt, tighten the nut to align them.



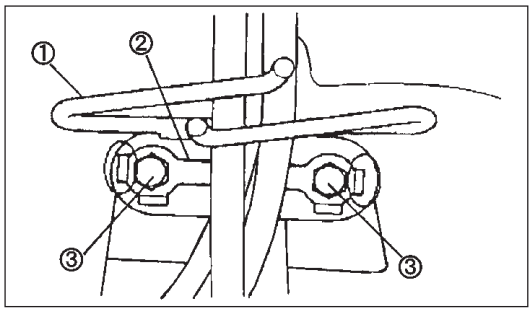
Warning

Always use new split pin

8.Tighting

After mounting the washer,nut, split pin under the steering vertical column.

Nut torque:30Nm



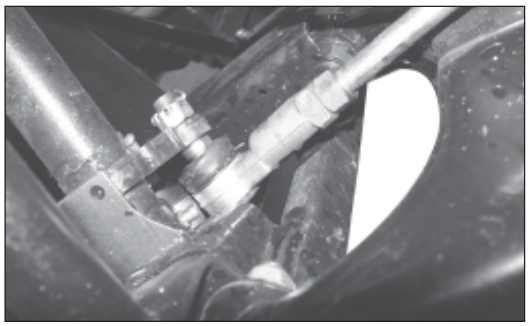
9.Install

Clip ¢Ùlocking washer ¢Úbolt ¢Û

Attached:bolt torque:23Nm

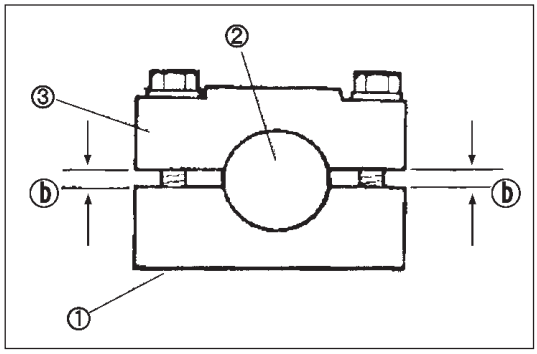
Warning

Always use new locking washer.



10.Bent showing supporting lug of locking washer to lock tightly the bolt.

11.Fill the lubrication oil at the oil cup to lubricate the bearing under the steering vertical column.Lubricatin oil is Lithium base grease.



(V)Installation steps of steering bar

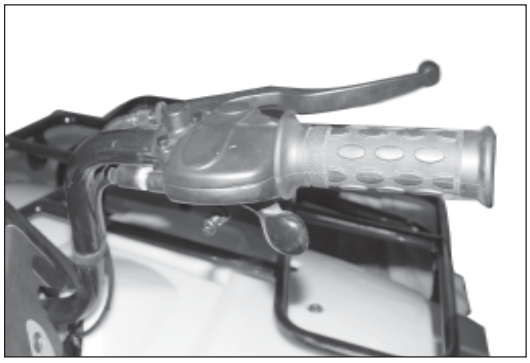
1.Install the lower holding seat¢Ù steering tube ¢Ú and upper holding seat ¢Û

Warning

When tightening the bolt of holding seat, make ensure the even of clearance ⓑ.

Attached:bolt torque:20Nm

2.Install the throttle grip unit



Caution

The projection ¢Ù of throttle grip must correspond to the sunken part ¢Ú on the right lever seat when installation.

Warning

Correct installation of cable and wire is very necessary for ensuring the safty operation of vehicle.

Refer to chapter 1“wiring diagram of vehicle”

3.Ajusting the free clearance of brake cable

Refer to “Adjustment of Front brake”and “Adjustment of free clearance about left handle lever and rear brake pedal ”in chapter2.

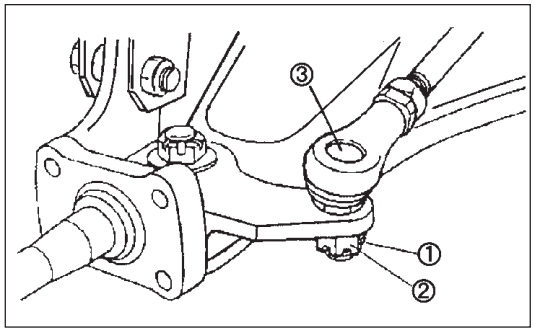
4.Adjusting the toe-in of front wheel

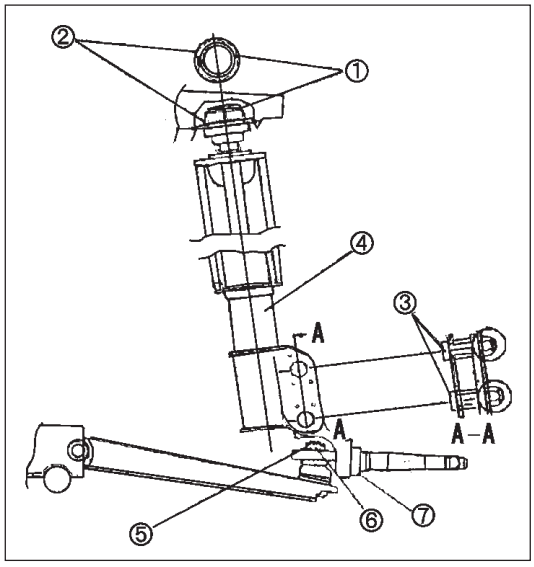
Refer to “Adjustment of Front twheel Toe-in”in chapter2.

5.Mounting front fedner, bumper, front luggage carrier.

Refer to the second section of chapter2.

Section 4 Front shock absorber and Front wheel fork





(I)Disassembly:

1.Take off front luggage carrier, bumper, front feder.

Refer to the second section of chapter2

Disassemble the front wheel front brake hub. brake shoe unit and front brake cap unit

Refer to “Dischargement of front wheel and front brake”of this chapter

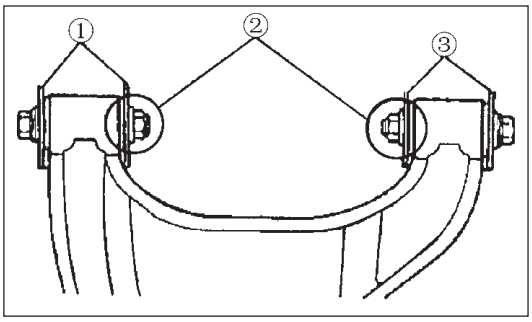
2.Take off split pin¢Ù nut¢Úand steering rod ball pin assembly¢Û

3.Take off clip 32 ¢Ùon the front shock absorber.

4.Loosen the front shock absorber nut ¢Ú

5.Take off the bolt ¢Ûunder the front shock absorber nut of front shock absrober ¢Úand front shock absrober ¢Ü

6.Take off split pin ¢Ý nut ¢Þon the left/right front seat assy and left/right front seat assy ¢ß



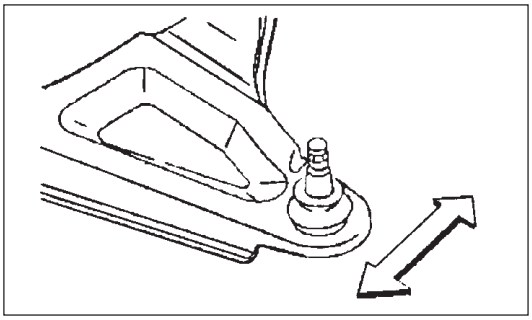
7.Check the free clearance of left/right front wheel fork

Inspection step:

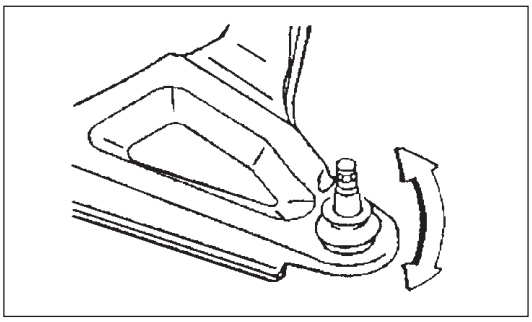
a:Check the parts ¢ÙÒof let/right front wheel fork on the frame, if it is bend, crack or worn repair or replace the frame.

b:Check the torque value of locking nut on the left/right front wheel fork

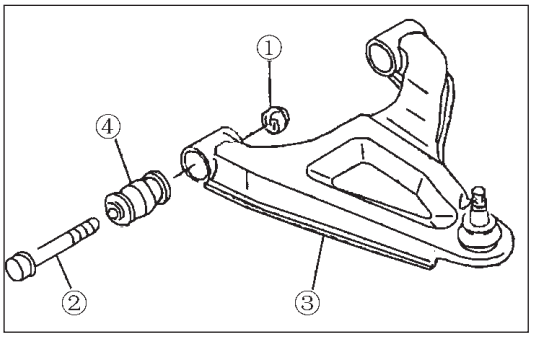
Attached:Nut torque value:45Nm



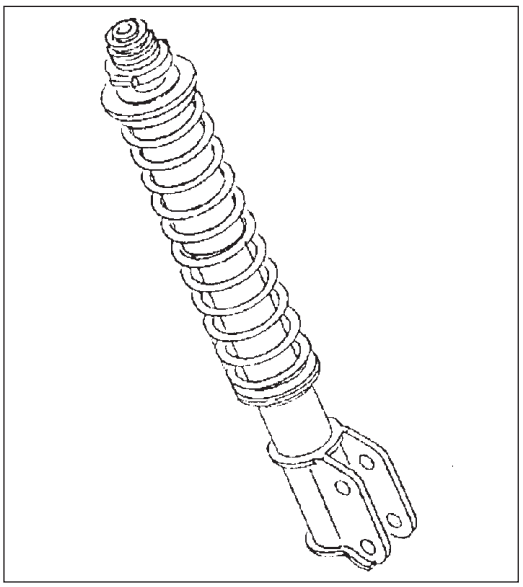
c:Move the left/right front wheel fork from one side to another to check its side clearance. If the side clearance is very obvious replace bushing sub-assembly or a set of front wheel fork.

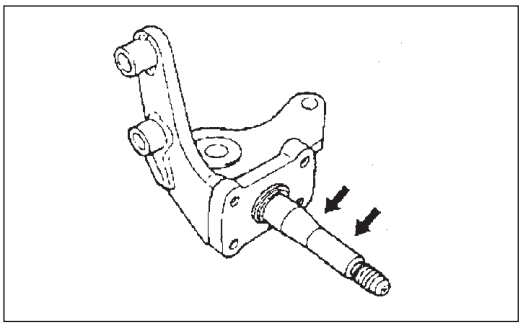


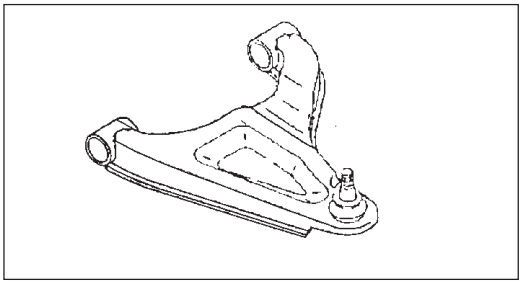
d:Move the left/right front wheel fork up and down to check its vertical clearance. If the vertical moving is tight, limited or uneven, replace the bushing sub-assembly or whole front wheel fork.

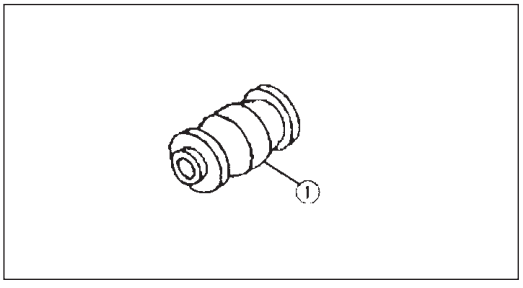


8.Take off nut¢Ù bolt¢Ú left/right front wheel fork ¢Ûand bushing sub-assembly ¢Ü









(II)Inspection step

1.Check the front shock absorber. If it is leakage ,replace it .Check the universal joint.If it is crack or damaged,replace the front shock absorber.

Check spring, if it is fatigue or damage, replace the front shock absorbe.(When checking, move the spring up and down)

2.Check the front seat assy of front brake, if it is crack sunk or damaged, replace it.

Warning

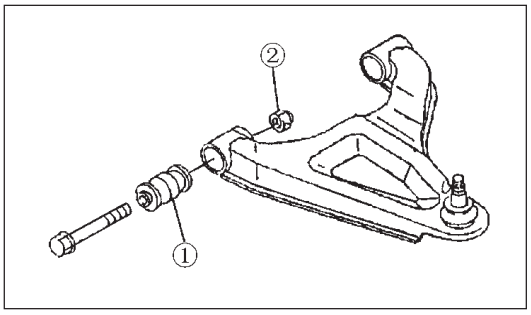
If the front axle is bend don't strighten it in order to avoid reducing the performance of front axle on the brake.

3.Check the left/right front wheel fork welding, if it is crack, bent or damaged, replace it.

Warning

If the left/right front wheel fork welding is bent, don't strighten it seriously in order to avoid reducing its performance.

4.Check the bushing sub-assembly ¢Ù if it is worn or damaged, replace it.



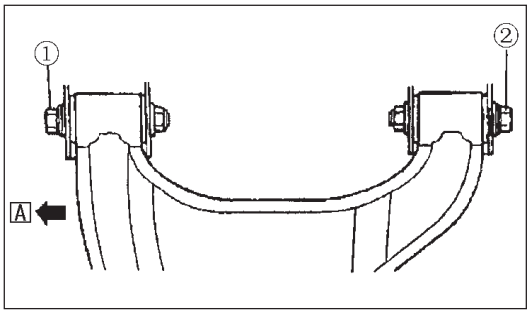
(III)Installment steps

The opposit steps of “Disassembly”is the mounting steps. The following must be paid attention when mounting:

1.Lubricate the inner surface of bushing sub-assembly ¢Ù(Lubrication oil is lithium base grease).

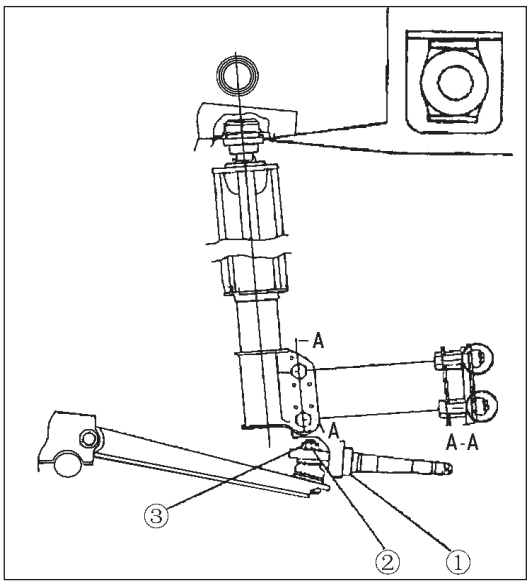
2.Fix nut

Nut torque:45Nm



Caution

Must ensure the correctionof bolt mounting direction of left /right front wheel fork, bolt head position is the position showing on the drawing ¢Ùfront, behind ¢Úthat make the bolt head is outward.

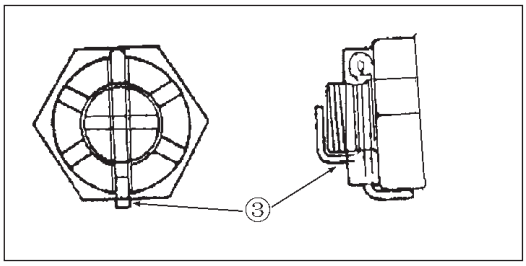


means the vehicle is forward.

3.Mount left/right front seat assy ¢Ù

4.Fix the nut ¢Úof left/right front seat assy.

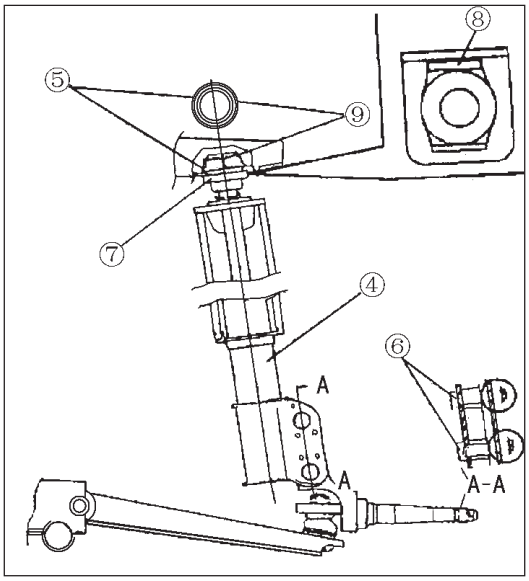
Attached: Nut torque :25Nm



5.Mount the split pin ¢Û

Caution

Don't loosen the nut after marking the standard torque.If the recess on the nut is not correspondence with split pin hole on the bolt, correct it by tightening the nut.



Warning

Must use new split pin.

6.Mount:

Front shock absrober ,front shock absorber nut ¢Ý¸bolt ¢Þunder the front shock absorber.

Caution

Before fixing the front shock absorber nut¢Ý¸ Must ensuring the side plane ¢à of universal joint¢ßs limited by frame limited block.

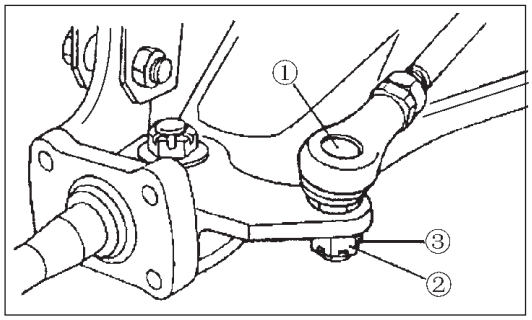
In order to the head of bolt is forward, the correction of bolt mounting direction ¢Þunder the front shock absorbe should be guaranted.

7.Tightten the nut ¢Ý¸bolt of front shock absorber ¢Þ

Attached:Nut torque of front shock absorber: 55Nm

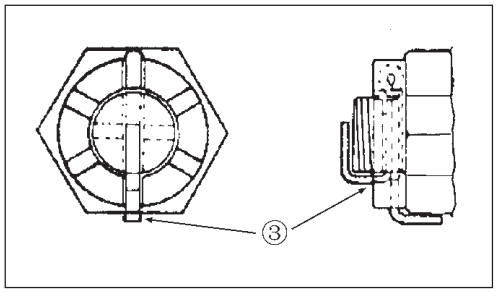
Botl torque :78Nm

8.Mount circlip¢ß



9.Mount steering lever ball pin assembly ¢Ù¸ nut ¢Úand split pin ¢Û

Attached: Nut torque:25Nm



Caution

Don’t loosen the nut after markingthe standard torque.If the recess on the nut is not correspondence with the split pin on the bolt, correct it by fixing the nut.

Warning

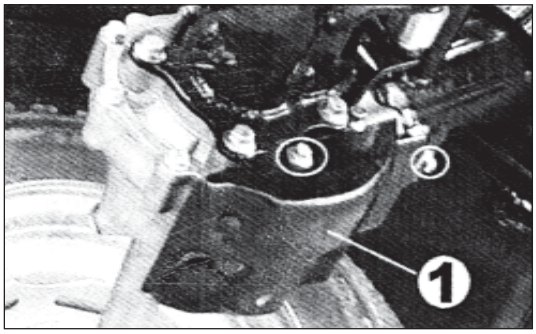
Must use new split pin¢Û

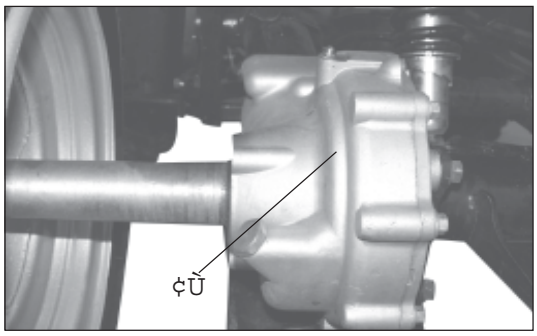
10.Mount front brake cap assy brake shoe assy front brake hub and front wheel.
Refer to “installation of front wheel and front brake”of this chapter.

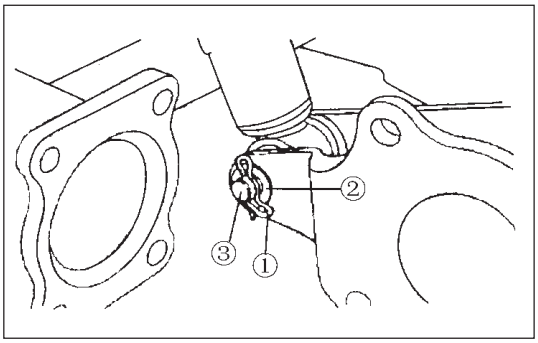
11.Adjust front wheel toe-in
Refer to “Adjustment of Front wheel toe-in”in champer.

12.Mount front fender,safty lever, front carrier,
Refer to the second section of chapter2.

Section 5 Rear shock absorber and Rear wheel fork







(I)Disassembling steps

1.Take off left rear wheel, rear wheel joint plate right rear wheel rear brake hub, rear brake and rear wheel axle.

Refer to “Disassembly of rear wheel/rear brake and rear wheel axle”section in this chapter.

2.Take off lower cap ¢Ùof gear case.

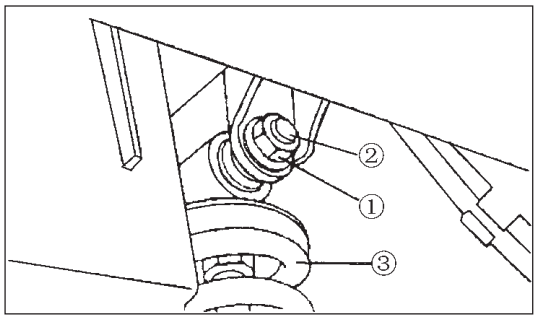
3.Take off the rear drivig gear case sub-assembly ¢Ù

Refer to “Dischargement of rear driving gear case sub-assembly and driving shaft”section of this chapter.

4.Take off split pin3.2 ¡Á24 ¢Ù,washer 12 ¢Ú and rear shock absorber pin shaft ¢Û

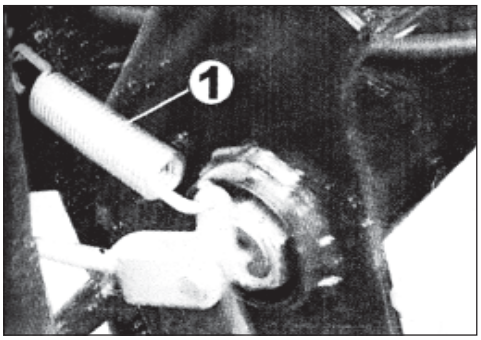
Caution

When take off rear shock absorber pin shaft ¢Ûhold rear wheel fork in order to rear wheel fork don’t drop when takingoff the rear shock absorber pin shaft ¢Û



5.Take off nut ¢Ùon the rear shock absorber, bolt ¢Ú¸rear shock absorber ¢Û

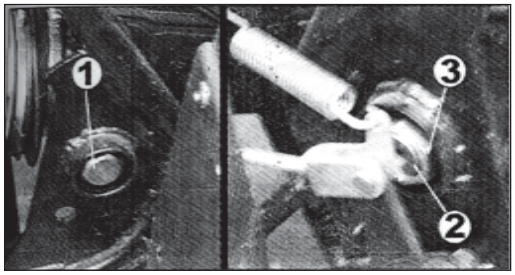
6.Take off rear brake tension spring ¢Ù



7.Take off dusty cap on rear arm axle (¢Ù.¢Ú point)

8.Check the free clearance of rear wheel fork checking steps.

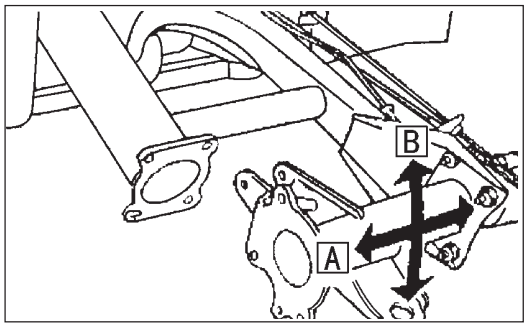
a:Check the torque value of rear arm joint bolt ¢Ùand the torque value of rear arm bolt ¢Ú and nut ¢Ûof rear wheel fork right side.



Attached:Torque of rear arm joint bolt ¢Ùand nut ¢Ûis 130N.m

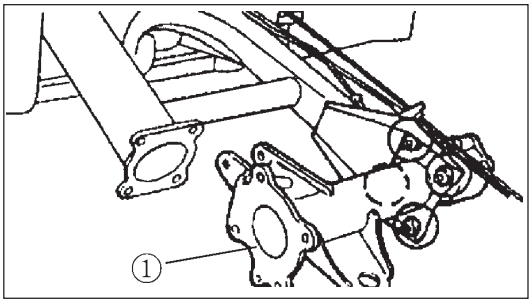
Torque of rear arm joint nut ¢Úis 6N.m

b:Move the rear wheel fork across to check the side clearance (A).If the clearance is big, check the relevant parts of bush bearing 30203 and frame.



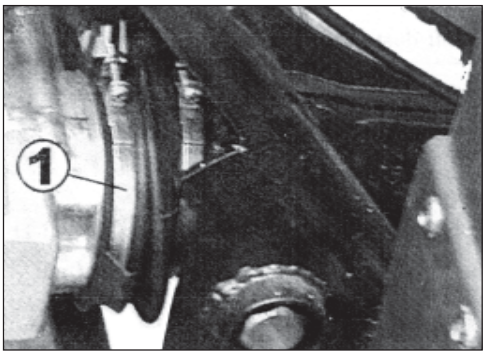
Attached:Free clearance value is less than 1. 00mm

c:Move the rear wheel fork up and down to check the vertical clearance.If the clearance is too tight limited or uneven, check the relevant parts of bush bearing 30203 and frame.

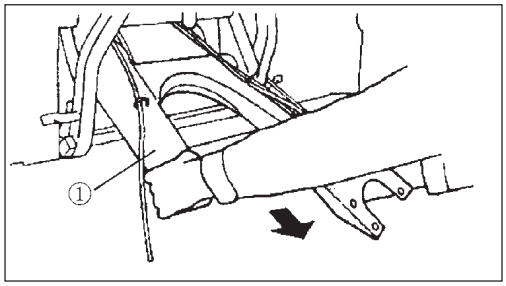


9.Take off rear bush ¢Ù

10.Take off driving axle clamp assy(front)¢Ú rear arm nut (right side)and rear arm joint bolt.



11.Take off rear wheel fork assy ¢Û



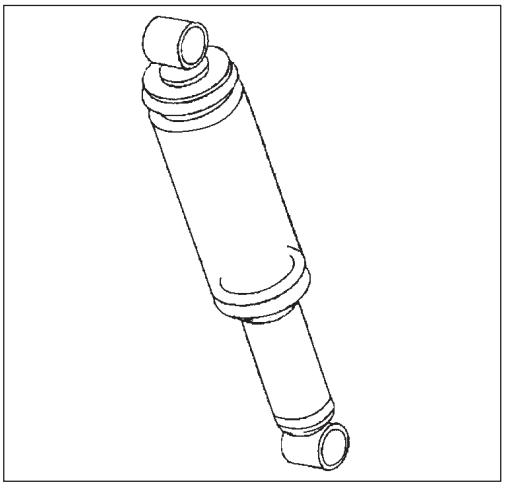
(II)Checking steps

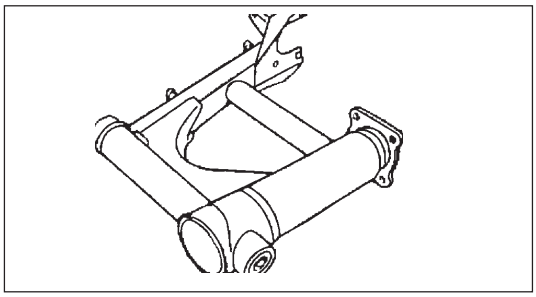
1.Check

a:If rear shock absorber is leakage, if any , replace it.

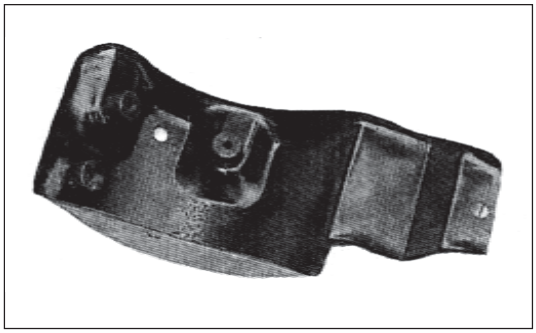
b:If rear shock absorber is bent or damaged, if any, replace it.

c:Pull the spring up and down to check if the spring fatiguer or damaged,if any, replace rear shock absorber.



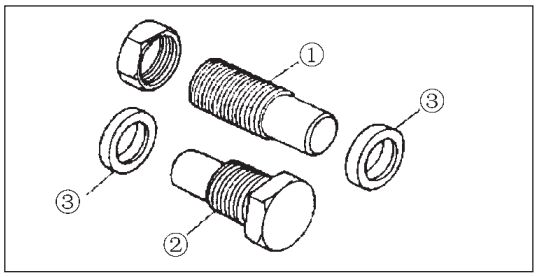


2.Check if the rear wheel fork assy is crack bend and damaged, if any, replace it.
Check if the rear wheel bush is crack, bend and damaged. If there is one of these problems replace it.

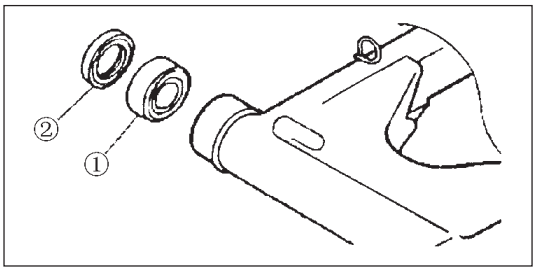


3.Check the gear case lower cap, if there is one of crack bend damagement problems, replace this part.

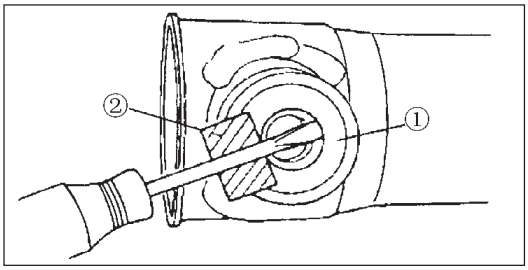
4.Check the rear arm joint bolt ¢Ùand rear arm joint botl ¢Úand bush ¢ÛIf one of these parts is worn or damaged, replace it.



5.Check thje bearing 360203 ¢Ùof rear wheel fork assy, if ther is free clearance during the bearing matches with the rear wheel fork, or uneven swirl, replace the bearing.Check the oil sealing¢Ú,if it is worn or damaged, replace it.

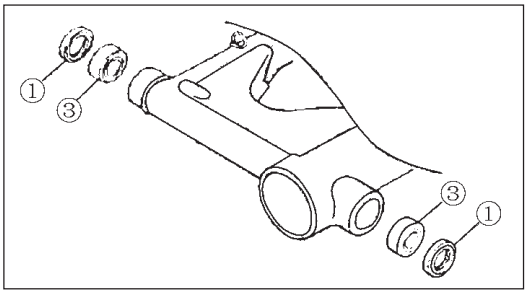


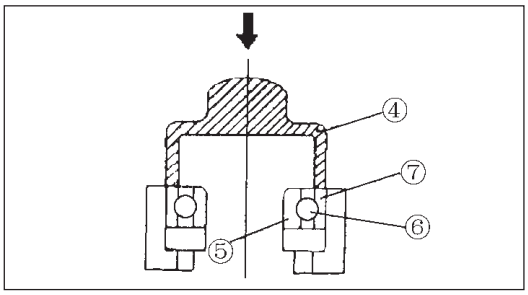
Replacing steps of bearing 30203and oil sealing .
a:Clean the bearing round
b:Take off the oil sealing ¢Ùwith flat screwdriver.

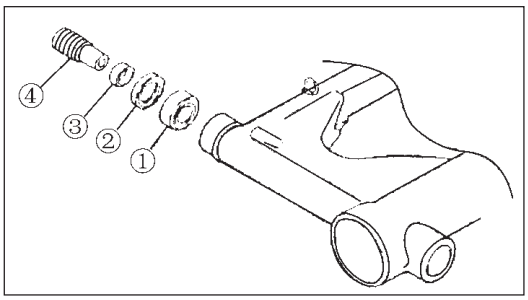


Caution

Put a wooden block ¢Úat the outer side in order to protect the outer side.







Take off bearing ¢Ûwith usually bearing tool

The reverse step of “bearig and oil sealing replacing step”is the mounting step of new bearing and new oil sealing.

Caution

Use a pressure tooling ¢Üwhich is match with outer diameter of bearing race ¢ßand oil sealing.

Warning

Don’t strike the bearing inner race ¢Ýand roller.

The pressure tooling ¢Üis only contact with outer race ¢ß.

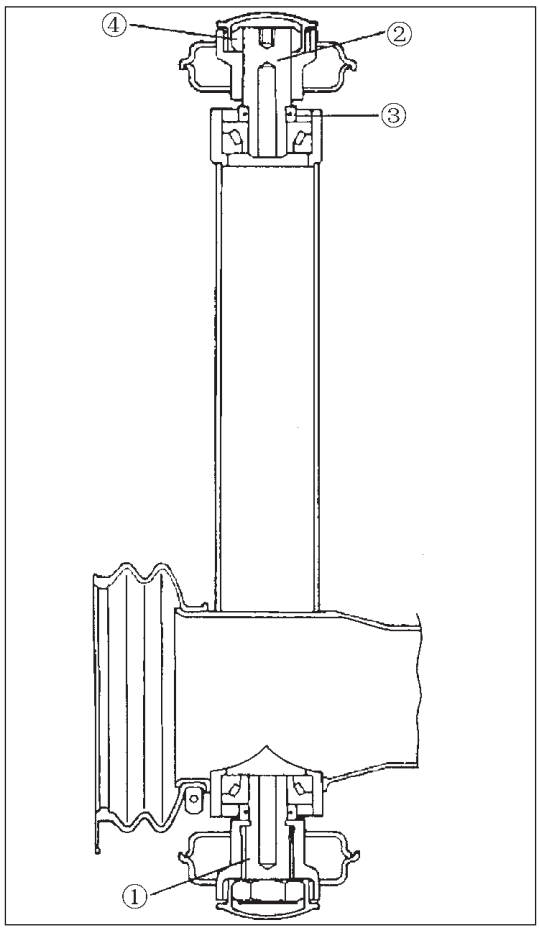
(III)Mounting steps:

The reverse steps of “disassembly is the mounting step,but the following points must be paid attention during the installation: ”

1.Lubricate the bearing¢ù, oil sealing¢ú,bush ¢Û and rear arm joint bolt ¢ü

Lubrication oil is Lithium base grease.

2.Mount the real wheel fork assy, rear wheel fork bushing and rear arm joint bolt.



3.Fix the rear arm joint bolt ¢Ù(left),rear arm joint bolt¢Ú(right)and bush¢Û.

Fixing steps:

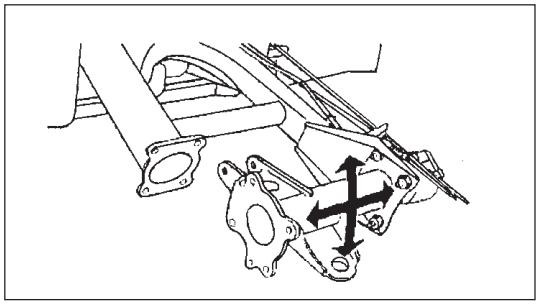
a:Fix the left t rear arm joint bolt ¢Ùby standard torque.

b:Fix the right rear arm joint bult¢Úuntil it contact with its bush ¢Û.

Attached:Bolt torque :6Nm

c:Fix right rear arm nut ¢Üby standard torque.

Attached:Rear arm nut torque:130Nm

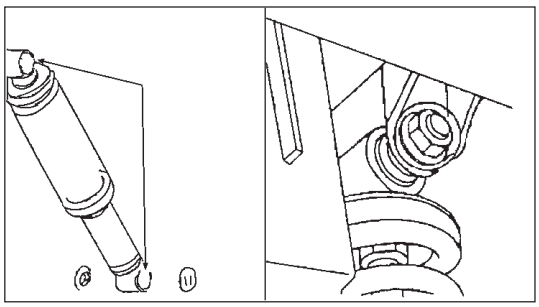


4.Check rear wheel fork free clearance.

Refer to the 8step in “disassembly”

5.Lubricate the upper and lower end surface of rear shock absorber(see figure)

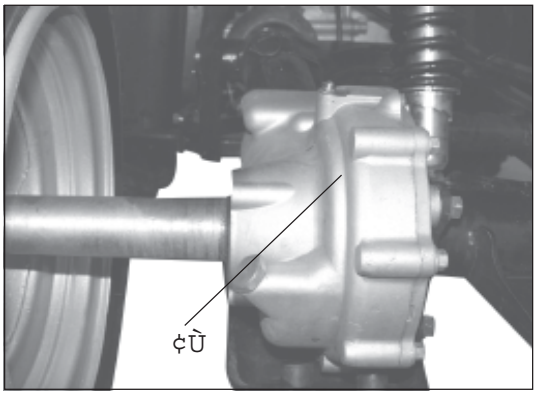
Use Lithium base grease as lubrication oil



6.Mount rear shock absorber

Upper nut torque of rear shock absorber :50Nm

7.Mount split pin



8.Mount the rear driving gear case sub-assembly ¢Ù

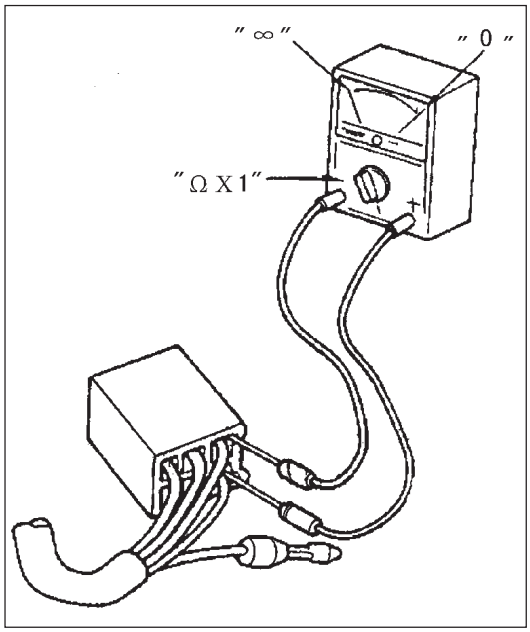
Refer to “Installation of rear driving gear case sub-assembly and driving shaft ”section of this chapter.

9.Mount the rear wheel axle, rear brake, rear brake hub, right rear wheel, rear wheel joint plate and left rear wheel.

Refer to “Installtion of rear wheel/rear brake/ rear wheel axle”section of this chapter.

Chapter IV Electric Appliance

Section 1 Inspect switch



(I)Inspect switch

Inspect if the circuit between wire end is on with pocket multimeter. If there is any failure ,replace the switch.

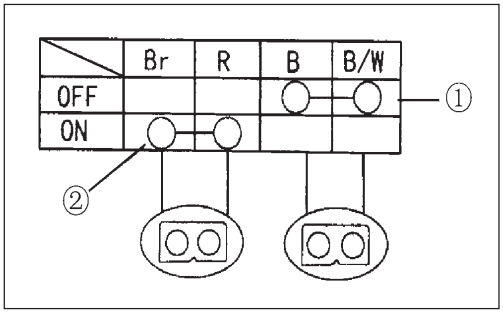
	Pocket multimter

Remark

.Adjust the multimeter to “O”before inspecting

.Adjust the multimeter to “ ¦‚Á 1”when inspecting the circuit.

.Should turn on and off the switch many times when inspecting.



The manual explains how to inspect the switch

The left figure indicate the wire end position of switch. The vetical line indicates switch position.

The first row indicates color of switch wore. To every switch.“O-O”indicates the circuit between the wire ends is on.

¢ÙWhen the siwtch is adjusted to “OFF”.the “black”and “black/white”wire are on.

¢ÚWhen the switch is adjusted to “ON”,the “red”and “brown”wire are on.

Section 2 Check Lamp (headlight)

Check the lamp condition

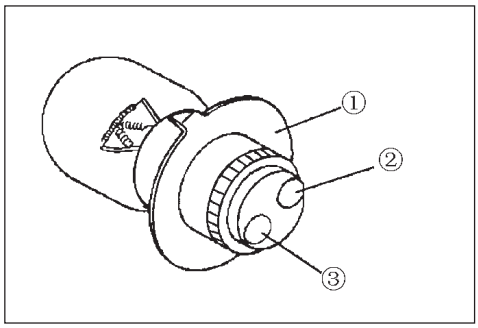
1.Remove the lamp

Caution

Pay attention to support the lamp seat. Don't pull the lead wire, otherwise it wil be broke.

Warning

When the headlight light up, please remove the inflammable and your hand from the lamp.Because it will be very hot,you can touch it only until it is cool.



2.Check if the circuit of lamp teminal is on. checking steps

****

.Adjust the choice knob of pocket multimeter to " ¦Á 1"

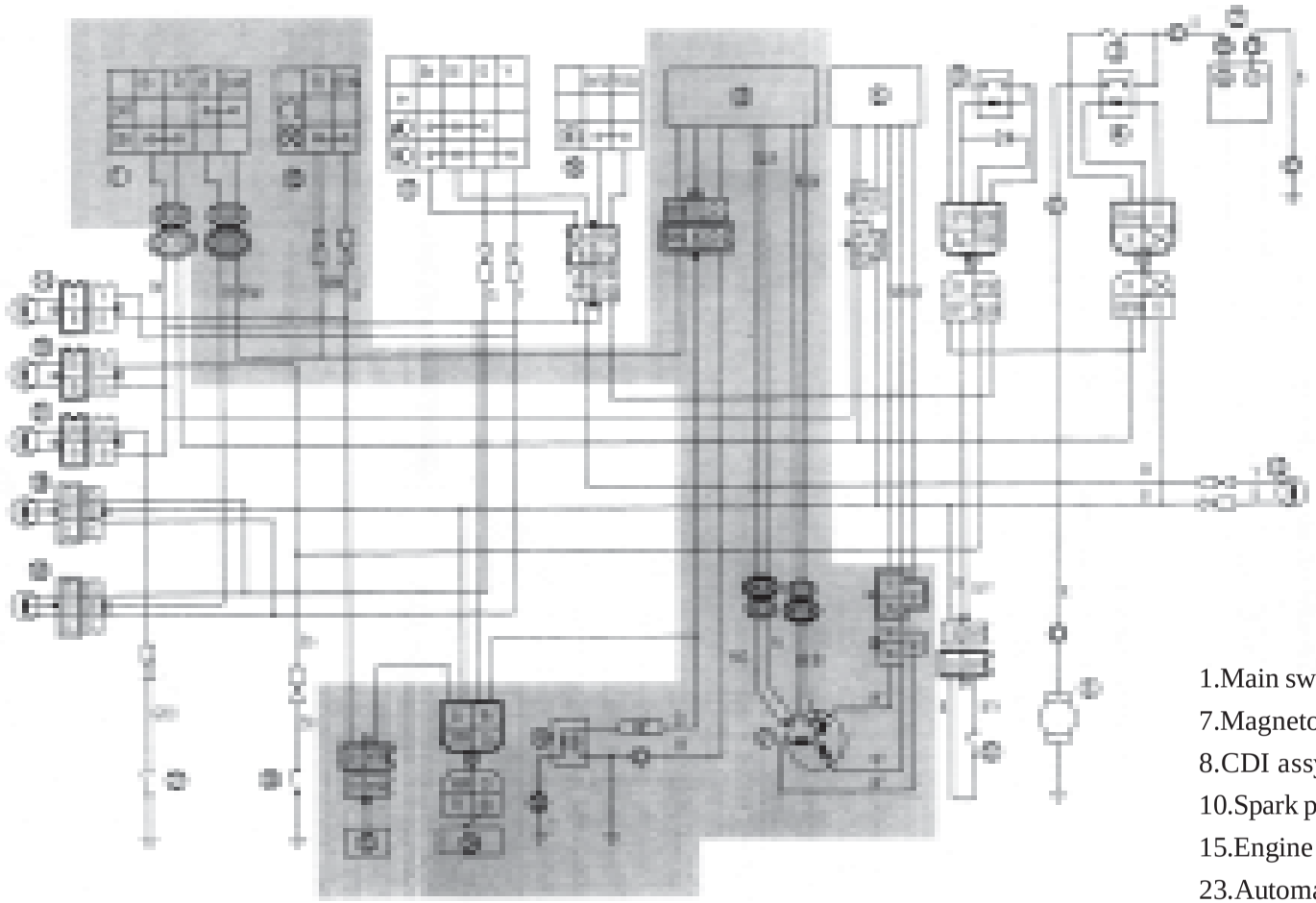
.Connect the multimeter pen to corresponding lamp wire end. Firstly connect the multimeter pen(+)to wire end ¢Ùand pen(-)wire end ¢Úto check the circuit between ¢Ùand ¢ÚThen connect the multimeter pen(+)to wire end pen (-) to wire end ¢Ûto check the circuit between ¢Ù and ¢ÛIf it display " ¡Þ"one time, replace the lamp.

3.Mount a checked lamp to check the lamp seat. The same as checking the lamp, connect the multimeter pen to related lamp seat wire and check the circuit by the same method as above.

Color indication:

Br-Brown	O-Orange
R-Red	Sb-Sky blue
B-Black	G/Y Green/Yellow
B/W-Black/White	W-White
Bl/Blue	G/Bl-Green/Blue
G-Green	Y/R-Yellow/Red
Y-Yellow	Y/G-Yellow/Green
Br/W-Brown/White	B/Y Black/Yellow
R/W-Red/White	

Ignition system diagram



1.Main switch
7.Magneto
8.CDI assy
10.Spark plug
15.Engine stop switch
23.Automatic air choke
24.Controller

Section 3 Troubleshooting the ignition system failure

If the ignition system does not work(no spark or spark stops)

Step

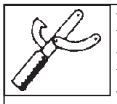
Check

1.Spark plug
2.Ignition park clearance
3.Resistance value of spark plug cap
4.Resistance value of ignition coil
5.Engine stop switch
6.Main switch
7.Resistance value of triggering coil
8.Resistance value of charge coil
9.Circuit connection (whole ignition system)

Remark

.Remove following components before troubleshooting:
1)Cushion
2)Front frame
3)Front fender

Check and repaire with following special tools.



Power spark tester:
Ignition tester:
Pocket multimeter:

1.Spark plug
.Check the spark plug condition
.Check the spark plug type
.Check the spark plug clearance
Refer to chapter 3 “Check spark plug”

Standard spark plug
D8RTC

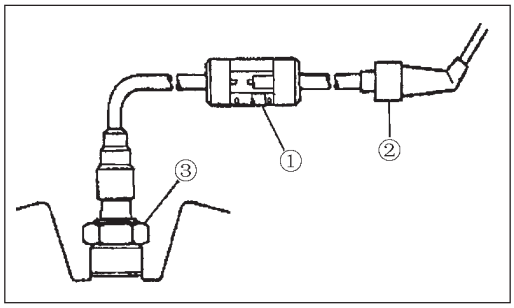
Spark plug clearance
0.6~0.7mm(0.024~0.028in)

Incorrect

Repair or replace the spark plug

correct

2.Ignition spark clearance
.Remove the spark plug cap from spark plug .Connect as shown in figure ¢ÙSpark testing instrument ¢ÚSpark plug cap ¢ÛSpark plug .Rotate the main switch to “ON” .Check the ignition spark clearance. .Press down the starting switch to start the engine. And increase the spark clearance until the engine can not be started.

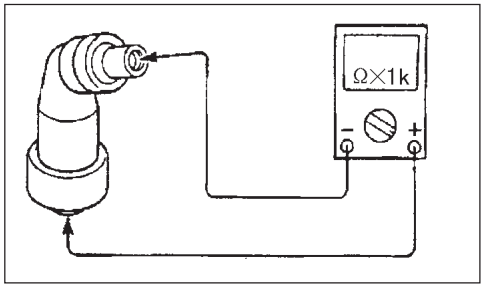


Min spark clearance
6.0mm(0.24in)

Conformig to specification

Ignition system has no problem

Not conforming to specification
or no spark



3.Resistance of spark plug cap
.Remove the spark plug cap .Connect the pocket multitester to spark plug cap

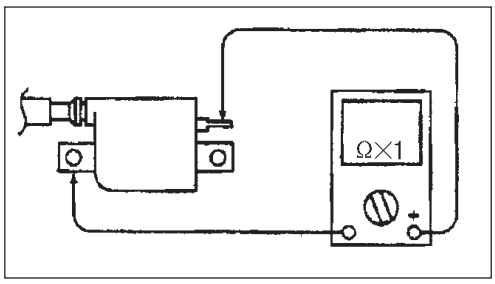
.Inspect if the resistance of spark plug conform to specification
Resistance of spark plug cap:20¡æ(68¡ãF)4-7K¦¸

Not conforming to specification

Replace spark plug cap

conforming to specification

4.Resistance of ignition coil
.Remvoe the ignitioin coil connector from cable .Connect the pocket multimeter (¦¸Á 1)to ignition coil.

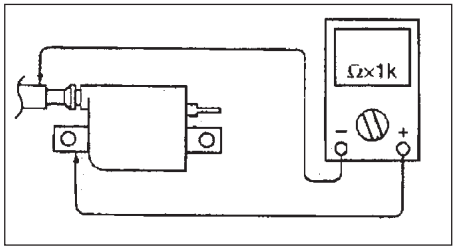


.Inspect if the resistance of primary coil conforms to specification

Primary coil resistance

At20¡æ(68¡ãF)0.43~0.5¦¸

.Connect the multitester£¨¦¸¡Á1K£©to ignition coil



.Inspect if the secondary coil resitance conforms to specification

Secondary coil resistance

At 20¡æ(68¡ãF)4.6-7.6K¦¸

Not conforming to specification

Replace ignition coil

All conform to specification

5.Engine stop switch

Refer to “Check switch”

Abnormal

Replce handlebar switch (left)

Normal

6.Main switch

Refer to “Check switch”

Abnormal

Replace main switch

Normal

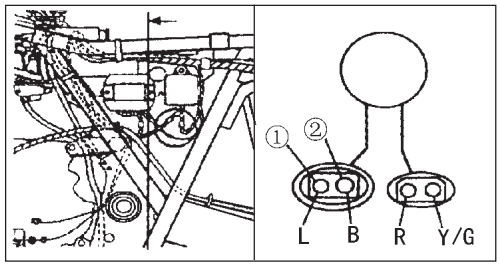
7.Resistance value of triggering coil

.Remove CDI magneto connector from clabe

.Connect the multitester(¦¸¡Á100) to wire end of triggering coil

Multitester pen(+)¡úblue wire end¢Ù

Multitester pen(-)¡úblue wire end¢Ú



.Inspect if the resistance of triggering coil conforms to specification

Resistance value of triggering value:

At 20¡æ(68¡ãF)180~220¦¸

Not conforming to specification

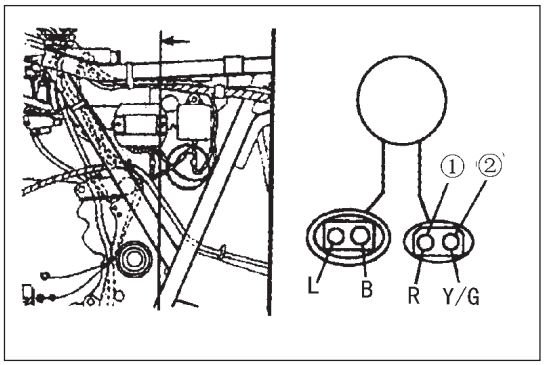
Replace triggering coil

Conforming to specification

*

*

8.Resistance value of charge coil
.Remove the corresponding connector of charge coil from cable. .Connect the mulitester(¦ ,¡Á100) to wire end of charge coil Multitester pen (+)¡úyellow/green wire end¢Ù Multitester pen (-)¡úyellow/green wire end¢Ú



Inspect if the resistance value conform to specification
Coil resistance value At 20¡æ(68¡ãF)450~550¦ ,

Not conforming to specification

Replace charge coil

Conforming to specification

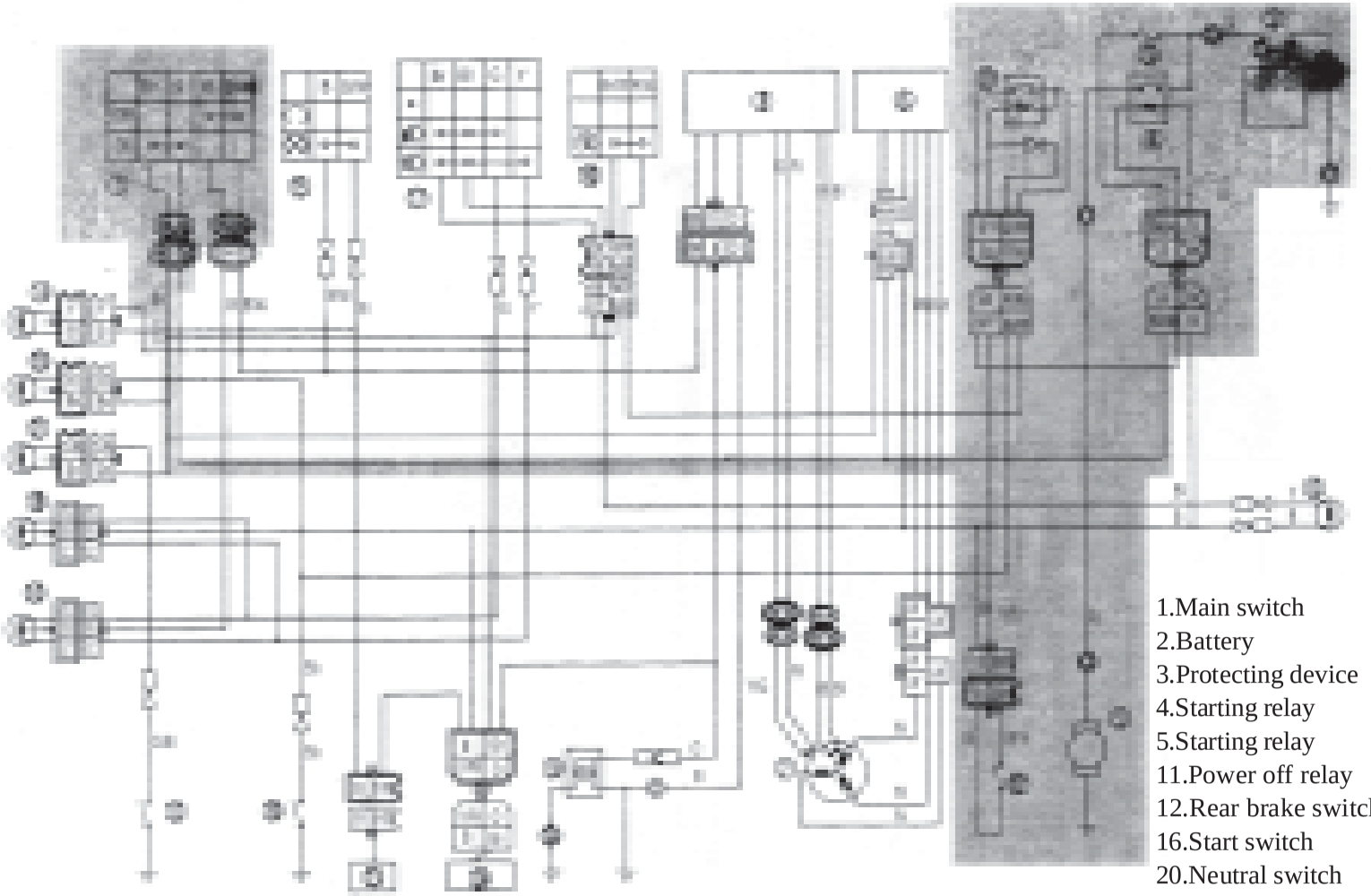
Poor connect

Connect the ignition systen correctly

Correct

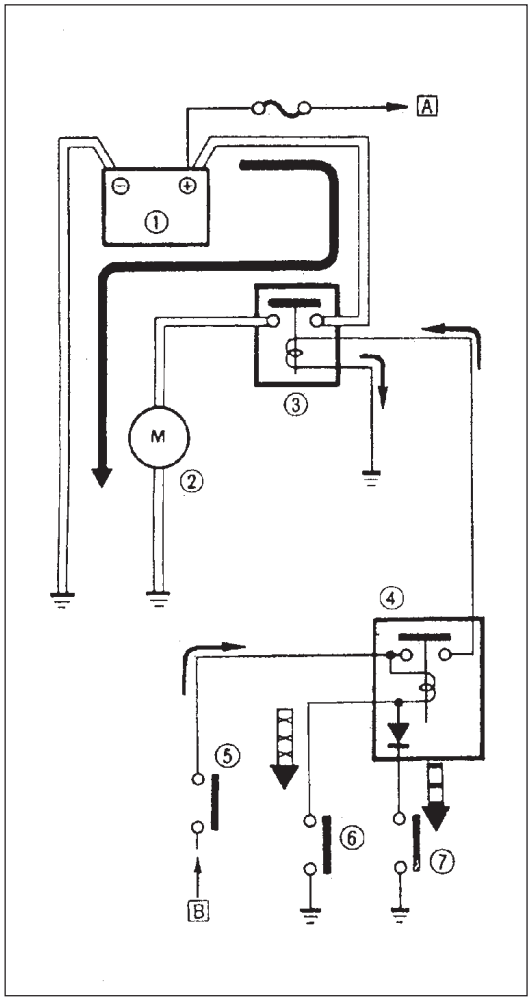
replace CDI assy

Electric starting diagram



1.Main switch
2.Battery
3.Protecting device
4.Starting relay
5.Starting relay
11.Power off relay
12.Rear brake switch
16.Start switch
20.Neutral switch

Section 4 Running of starting circuit



The starting circuit of this vehicle include starting motor, cut-off relay, rear brake switch and neutral switch. If the main switch is in position, the startig motor could be operated only at the following conditions:

.Driving device is at neutral position(neutral switch is closed)

.Tension brake switch (rear brake is closed)

When the vehicle is in driving or reverse start, and the rear brake is in idle start, then the cut-off relay will prevent starting device from running.On this condition, cut-off relay is closed, which leading the current can't reach to starting motor.

When driving device is at neutral position.

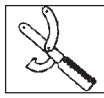
When rear brake is tensioned

¢ÙBattery
¢ÚStart motor
¢ÛStart relay
¢ÜCut-off relay
¢ÝStart switch
¢ÞRear brake switch
¢ßNeutral switch
(A)To main switch
(B)From main switch

Section 5 Troubleshooting electric starting system

If starting motor doesn't work

6.Main switch
7.Neutral switch
8.Rear brake switch
9.Staring switch
10.Circuit connection(Whole starting system)



Pocket-multimeter

Remark

.Remove the following parts before troubleshooting
1)Cushion
2)Front frame
3)Front fender
.Use the following special tool to troubleshoot

1.Safety

Refer to "check of switch"

No electrification

Pass

2.Battery

.Check the battery condition

Refer to "check battery"in chapter 3

Voltage of open circuit

At 20¡æ(68¡æF)12.8V or much more

Incorrect

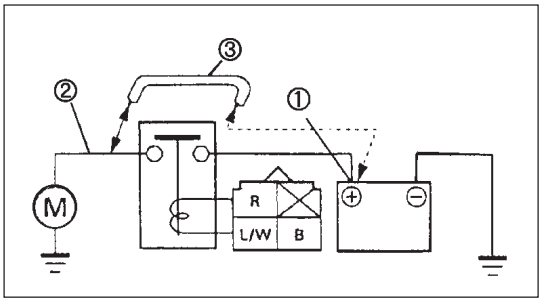
.Clean the battey terminal
.Recharge or replace battery

Pass

3.Starting motor
.Connect positive terminal ¢Ùof battery with cable ¢Ú fo starting motor by wire ¢Û
.Inspect the running condition of starting motor.

Warning

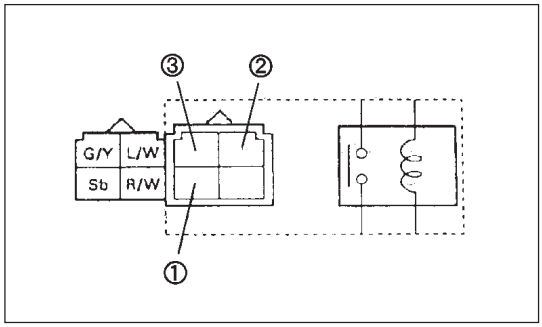
.Jumper wire must have the same or bigger loading capability than battery wire, otherwise it would be burned.
.This kind of testing is similar to marking electric spark, therefore, no inflammable air or liquid nearby must be ensured.



No rotation

Repair or replace starting motor

4.Power off relay
.Remove the relay from cable .Connect portable multitester (¦ ,¡Á1)and battery (12V) to wire end of power off relay
Battery end(+)¡úred/white wire end ¢Ù Battery end(-)¡úgreen/yellow wire end ¢Ú
Multitester pen(+)¡úred/white wire end ¢Ù Multitester pen(-)¡úblue/white wire end ¢Û

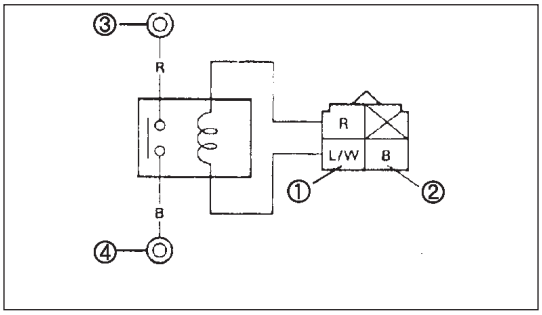


.Inspect if the power off relay is on

Replace power off relay

The circuit is on

5.Starting relay
.Remove the connector of starting relay from cable .Connect the multimeter (¦ ,¡Á1)and battery (12V)to terminal of power off relay.
Battery wire end(+)¡úblue/white wire end ¢Ù Battery wire end(-)¡úblack wire direction ¢Ú
Multitester pen(+)¡úred white end ¢Û Multitester pen(-)¡úblack wire end ¢Ü

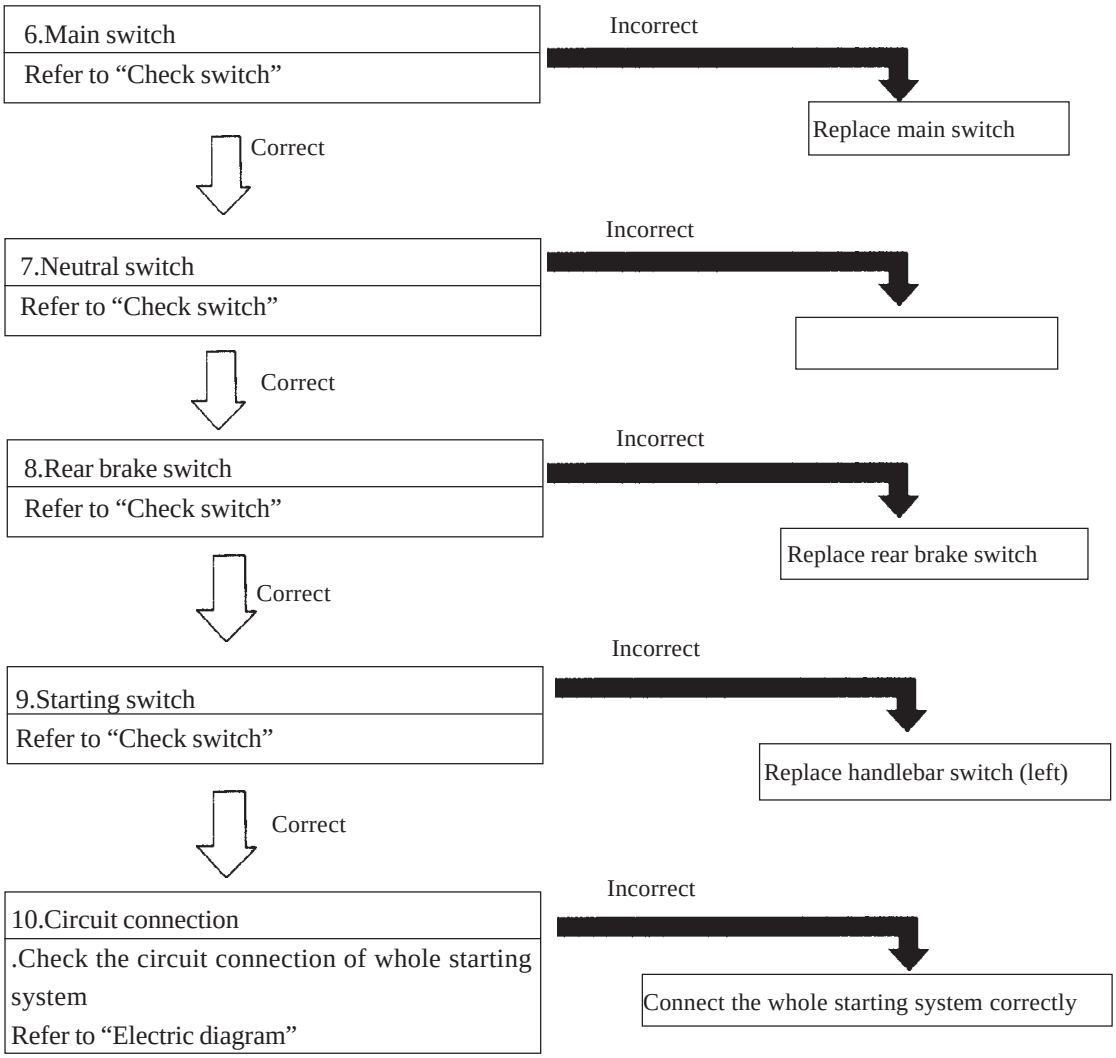


The circuit is not on

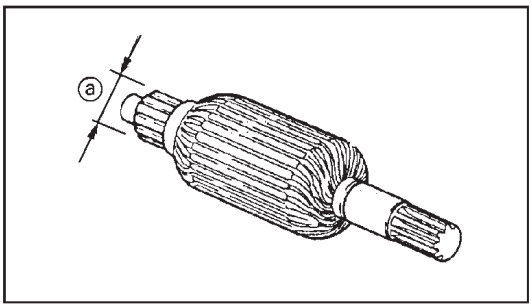
Replace starting off relay

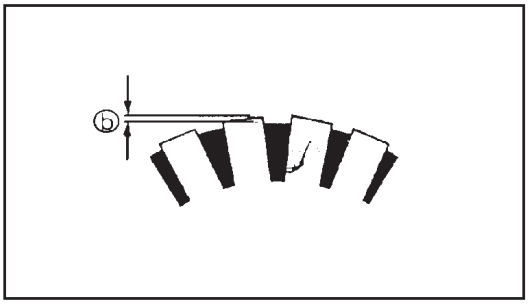
The circuit is on

※


6.Main switch
Refer to “Check switch”
Incorrect
Replace main switch
Correct
7.Neutral switch
Refer to “Check switch”
Incorrect
Correct
8.Rear brake switch
Refer to “Check switch”
Incorrect
Replace rear brake switch
Correct
9.Starting switch
Refer to “Check switch”
Incorrect
Replace handlebar switch (left)
Correct
10.Circuit connection
.Check the circuit connection of whole starting system
Refer to “Electric diagram”
Incorrect
Connect the whole starting system correctly

Section 6 Check starting Motor





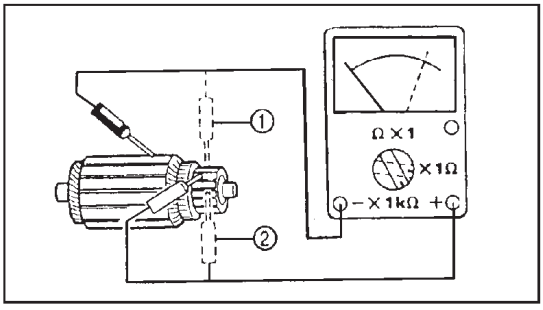
1.Check
.Reverser
Not clean ¡ú Clean with #600 sand paper
2.Ensure
.Reverser diameter @
Not conforming to specification ¡ú change the startig motor

	Outer diameter 28mm(1.10in) (Wear range) 27mm(1.06 in)

3.Measure
.Mica cut sheet ⓑ
Not conform to specification ¡ú Scrape the mica with square scraper

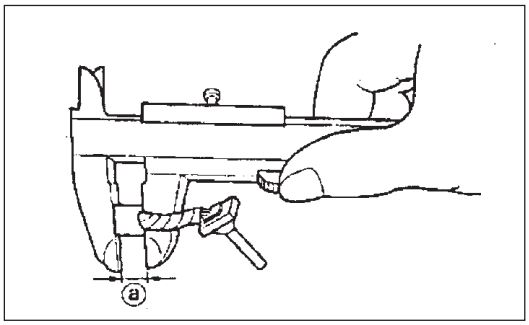
	Mica cut sheet:0.7mm(0.028 in)

Remark
Scrap the mica with square scraper to get proper dimension fit the reverser.
4.Check
.Armature winding (insolation /power on)
Failure ¡ú Replce starting motor
****
Check procedure of armature winding
.Connnect the multitester to check power on ¢ù and insolation ¢Ú condition
.Measure the armatur resistance



	Inner resistance of armature winding Power on condition check :At 20¡æ (68¡æF)0.004~0.005¦¸ Insolation check :At 20¡æ(68¡æF)exceed 1M¦¸

.If the resistance is incorrect, replace the motor.
****



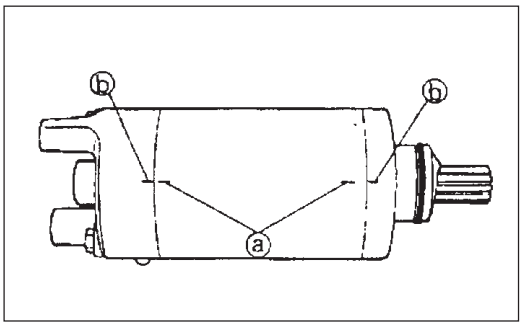
5.Measure
.Length @of brush (every one)
Out of specification ¡ú replace it

	Length of brush:10mm(0.39 inches) Range of wear:<6mm(0.14 inches)>

6.Measure
.Brushing spring force
Fatigue/out of specification ¡ú replace whole device

	Brushing spring force:326~970g(3.2~3.8N)

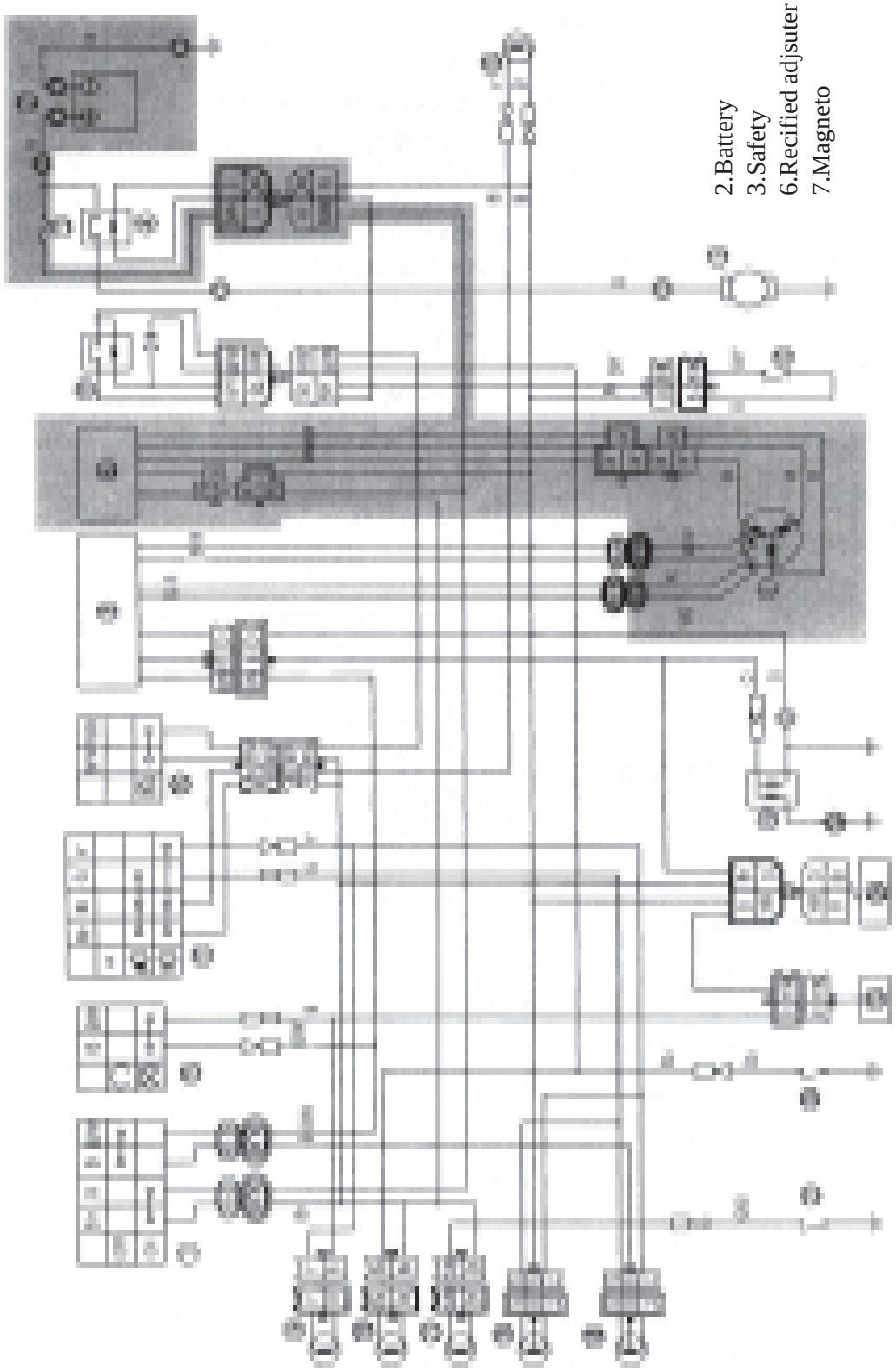
7.Check
.Oil sealing
.Bushing
.O-ring
Wear/damage ¡ú repalce it
Installation of starting motor:
1.Mount
.Magnetic steel
.Bracket



Remark

Mark the matching mark @On the magnetic steel is align to that on the bracket.

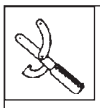
Diagram of charqine system



Section 7 No charging in the Battery

Steps
Check:
1.Safety
2.Battery
3.Charging voltage
4.Startor coil
5.Coupling of circuit
(Whole charging system)

Remark
.Remove some parts before maintenance
1)Cushion
.Repair with following special toolings



Coil techometer
Engine techometer

Pocket multimeter

1.Safety
Refer to “Inspection of switch”

NO.electrification

Replace the safety

Pass

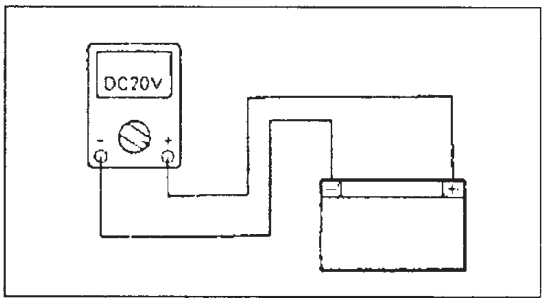
2.Battery
.Check battery condition Refer to “Inspection of Battery”in charter 3
Voltage: 12.8V or more at 20¡æ(68¡æF)

Incorrect

.Clean battery terminal
.Recharge or replace battery

Correct

3.Charging voltage
.Connect engine techometer to the wire of spark plug .Connect pocket tester(DC20V)to the battery
Pocket multimeter(+)¡ú White terminal Pocket multimeter(-)¡ú White terminal



.Start the engine and accelerate to 2000r/m or so.
Charging voltage:14-15V at 2000r/m
Remark:
Use battery with full capacity

Meet specification

No failure on charging circuit

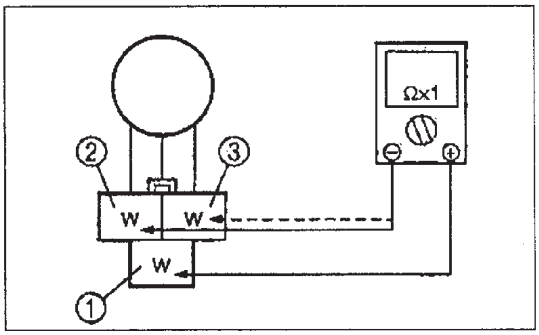
Oil of specification

4.Resistance value for startor coil
.Take out the lighting coil of AC magneto from inserter
.Connect pocket multiconeter to stator coil(¦¸Á 1)

Pocket multimeter(+) ¡ú White terminal
Pocket multimeter(-) ¡ú White terminal

Pocket multimeter(+) ¡ú White terminal
Pocket multimeter(-) ¡ú White terminal
Measure the resistance value of startor coil

At 20 ¡æ(68 ¡æF)11.10-1.50 ¦¸



Out of specification

Repalce parts of startor coil

Meet specification

5.Coupling of ciucuit
.Check the whole coupling of charging wire.
Refer to “Electric diagram”.

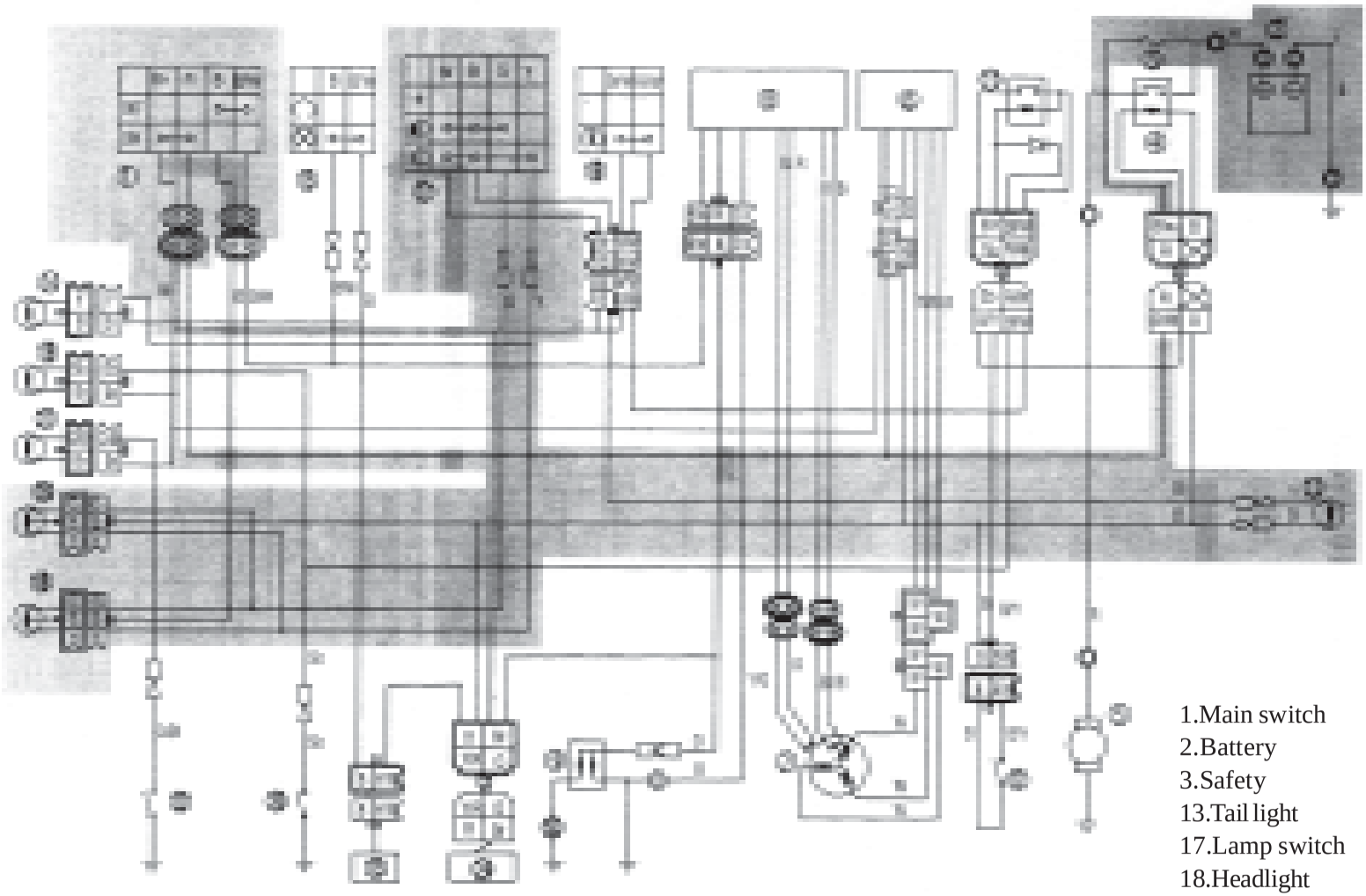
Poor connection

Connect the charging system correctly

Correct

Replace recticed adjuster

Diagram of lighting system



1.Main switch
2.Battery
3.Safety
13.Tail light
17.Lamp switch
18.Headlight

Section 8 Troubleshooting

If the headlight or taillight is not work

Steps

Check:

1.Safety

2.Battery

3.Main switch

4.Lamp switch

5.Coupling of wires(for entire lighting system)

Pocket multimeter:P/N YU-03112

90890-03112

Remark:

.Remove out the following parts before maintenance of troubleshooting

1)Cushion

2)Front luggage carrier

3)Front covering parts

.Use special toolings for troubleshooting

1.Safety
Refer to “Inspection of switch”

Pass

2.Battery
.Check the battery condition Refer to “Inspection of battery”in chapter 3
Voltage of open circuit 12.8V or more at 20 ¡æ(68 ¡æF).

Correct

3.Main switch
Refer to “Inspection of switch”

Correct

*

No electrification

Replace fuse

Incorrect

.Clean terminal of battery
.Recharge or replace battery

Incorrect

Replace main switch

*

4.Switch for lamps
Refer to “Inspection of switch”

Incorrect

If the lamp switch is failure replace the switch of handle(left)

Correct

5.Coupling of wires
.Check the wire compling or whole lighting system Refer to “Diagram”

Poor coupling

Connect whole lighting system correctly.

Correct

Check the returning condition of each lighting system. Refer to “Inspection of Lighting System”.

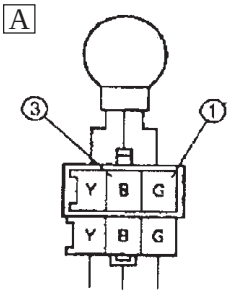
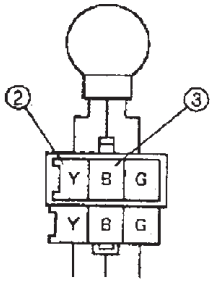
Section 9 Inspection of Lighting system

(I)If the headlight is out of work

1.Bulb and bulb socket
.Check the bulb and bulb socket condition

No electrification

Replace bulb and bulb socket

2.Voltage: Connect multimeter to the coupler of head-light socket(DC,20V)
A  B 
Multimeter(+)¡úgreen terminal ¢Ùor yellow terminal¢Ú Multimeter(-)¡úblack terminal¢Û
A When lamp switch is adjusted to LO position. B When lamp switch is adjusted to HIposition.

.Adjust main switch to “ON”position. .Adjust main switch to “ON”or “HI”position. .Check the voltage of “green”and“yellow”wires in coupler of bulb socket.

Out of specification

There is failure on the circuit from main switch to bulb socket coupler. Repair it.

Meet specification

No failure on circuit

(II)If the taillight is out of work

1.Bulb and bulb socket
.Check if the bulb and bulb socket is correct

No electricfication

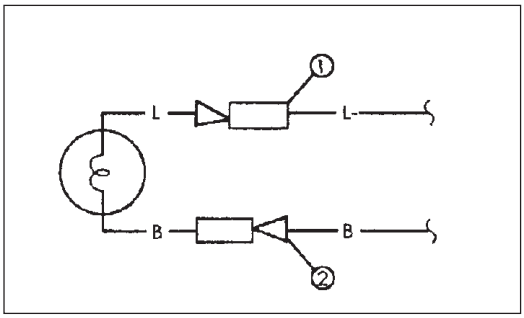
Replace bulb and bulb socket

Meet specification

2.Voltage

.Connect the pocket tester (DC 20V)to the terminal of taillamp.

Multimeter (+)¡úblue terminal¢Ù
Multimeter (-)¡úblack terminal¢Ú



.Adjust main switch to ON postion
.Adjust lamp switch to “LO”or “HI”postion
.Check the voltage of blue wire in coupler of bulb socket(12V)

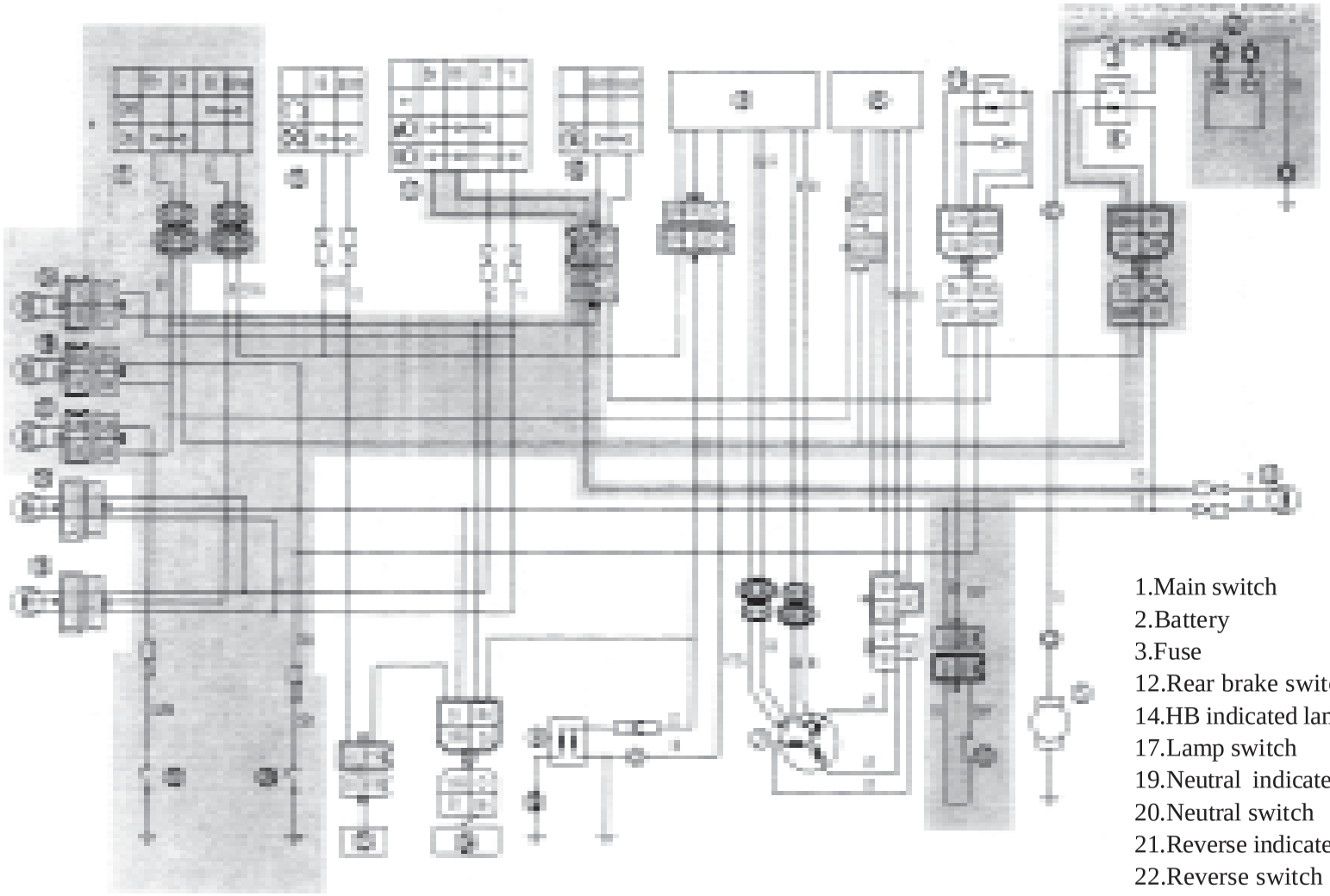
Out of specification

There is failure on the circuit from main switch to bulb socket coupler. Repair it.

Meet specification

No failure on this circuit

Diagram of signal system



1.Main switch
2.Battery
3.Fuse
12.Rear brake switch
14.HB indicated lamp
17.Lamp switch
19.Neutral indicated
20.Neutral switch
21.Reverse indicated lamp
22.Reverse switch

Section 10 Troubleshooting

(I)If indicated lamp is out of work

Steps

Check:

1.Safety

2.Battery

3.Front switch

4.Coupling of wires

(Whole signal system)

Pocket multimeter

Remark:

.Remove the following parts before troubleshooting.

1)Cushion

2)Front frame.

3)Front pedal

.Use special toolings for trouble shooting

1.Satety
Refer to “Inspection of switch”

Correct

No electrification

Replace fuse

2.Battery
.Check the battery condition Refer to “Inspection of battery”in chapter 3.
Volatage of open circuit 12.8V or more at at 20¡æ(68¡æF)

Correct

Incorrect

.Clean battery terminal
.Recharge or replace battery

*

*

3.Main switch
Refer to “Inspection of switch”

Incorrect → Replace main switch

Correct

4.Coupling of wires
.Check the coupling of whole signal system wires Refer to “Diagram of wires”

Poor connection → Connect it correctly

Correct

Check each signal system condition Refer to“Inspection of signal system”

Section 11 Inspection of Signal system

(I)If the neutral indicated lamp is out of work

1.Bulb and bulb socket

.Check if bulb and bulb socket circuit is correct

No electrification → Replace bulb and/bulb socket

Correct

2.Neutral switch

Refer to “Inspection of switch”

No electrification → Replace neutral switch

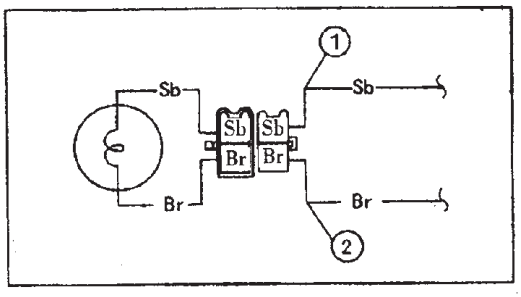
Correct

3.Voltage

.Connect pocket tester (DC 20V)to the terminal of bulb socket

Multimeter (+) ¡ú brown terminal ¢Ú

Multimeter (+) ¡ú sky blue terminal ¢Ù



.Adjust main switch to “ON”position.

.Check voltage (12V)

Out of specification → If there is failure on the circuit from main switch to the bulb socket coupler, repair it.

Meet specification

No failure on this circuit

(II)If the reverse indicated lamp is out of work

1.Bulb and bulb socket

.Check if bulb and bulb socket is correct

Pass

No electrification

Replace bulb and bulb socket

2.Reverse switch

Refer to “Inspection of switch”

Pass

No electrification

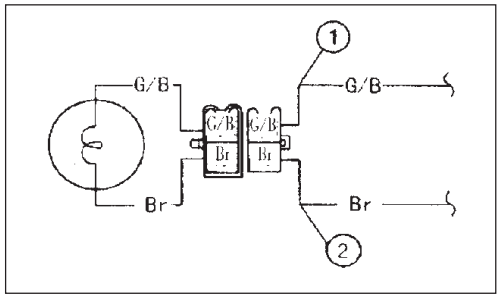
Replace reverse switch

3.Voltage

.Connect pocket multimeter (DC 20V)to the taillight terminal

Multimeter (+) ¡ú brown terminal ¢Ú

Multimeter (+) ¡ú green/bule terminal ¢Ù



.Adjust main switch to “ON”position.

.Check voltage (12V)

Meet specification

Out of specification

If there is failure on the circuit from main switch to the bulb socket coupler, repair it.

No failure on this circuit

(III)If the HB indicated lamp is out of work

1.Bulb and bulb socket
.Check if bulb and bulb socket circuit B are correct.

No electrification → Replace bulb and bulb socket

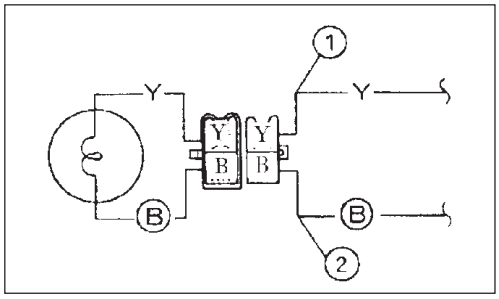
Pass

2.Reverse switch Refer to “Inspection of switch”

No electrification → Replace handlebar switch(left)

Pass

3.Voltage
.Connect pocket tester (DC 20V)to the tail-light terminal
Multimeter (+) ¡ú brown terminal ¢Ù Multimeter (+) ¡ú green/bule terminal ¢Ú



.Adjust main switch to “ON”position. .Check voltage (12V)

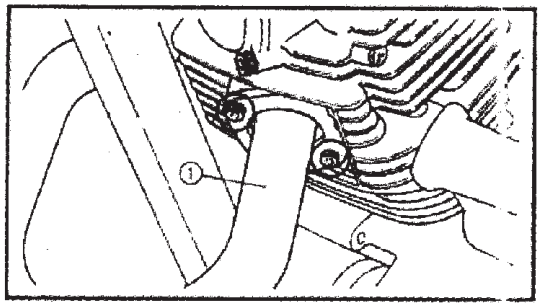
Meet specification

Out of specification → If there is failure on the circuit from main switch to the bulb socket coupler, repair it.

No failure on this circuit

Chapter V Engine

Section 1 Disassembly of engine



(I)Remove the engine from finished ATV

1.Remvoe

.Cushion

.Front luggage carrier

.Front bumper

.Front fender

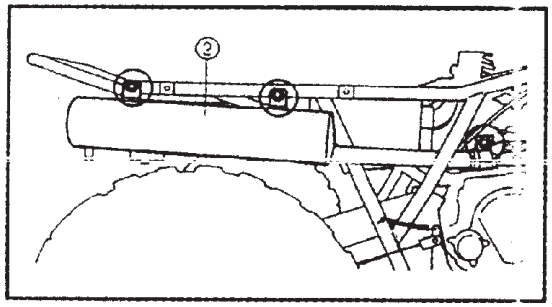
.Rear luggage carrier

.Rear fender

The disassembling method refers to “Fender, fuel tank disassembly” of chapter II.

2.Oil draining

Screw out oil draining screw plug. Drain off the lubricating oil of the engine from the oil draining hole.



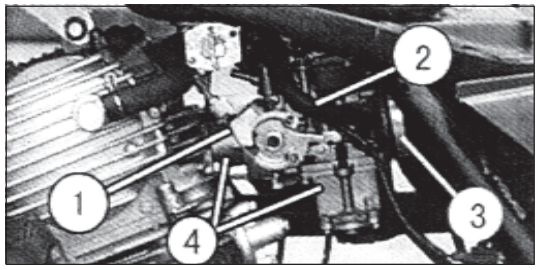
3.Exhaust pipe and sillencer

1)Remvoe

.Exhaust pipe ¢Ù

2)Remvoe

Silencer ¢Ú



4.Carburetor and air intake pipe

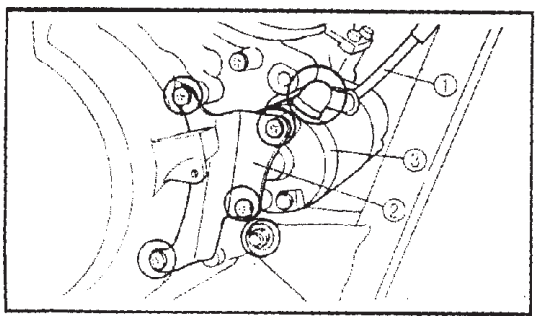
Place the throttle cock grip on “OFF”postion, and remove:

.Throttle cable ¢Ù

.Oil pipe ¢Ú

.Hoop ¢Û

.Carburetor, carburetor seat and hook hitch assy ¢Ü.



Caution

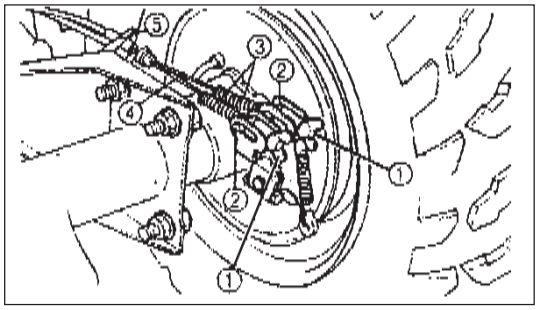
Before disassembling., drain off the gasoline of the carburetor float cabinet firstly. Wrap the overflow pipe with cloth to absorb the splashed gasoline. The gasoline is inflammable, Pay attention not to splash the gasoline on hot engine.

5.Starting motor

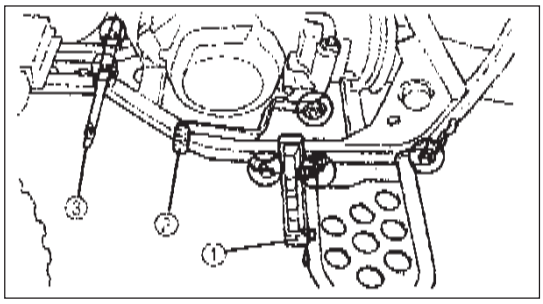
1)Remove

.Starting motor line ¢Ù

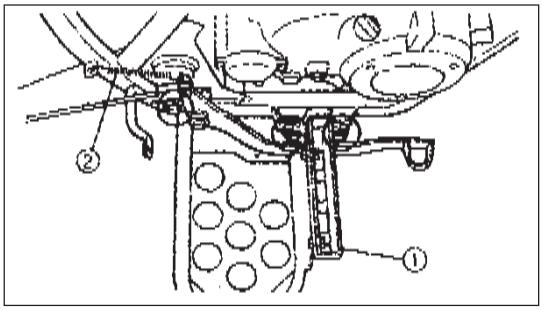
2)Remove
.Connecting plate of sharting motor¢Ú
.Starting motor¢Û



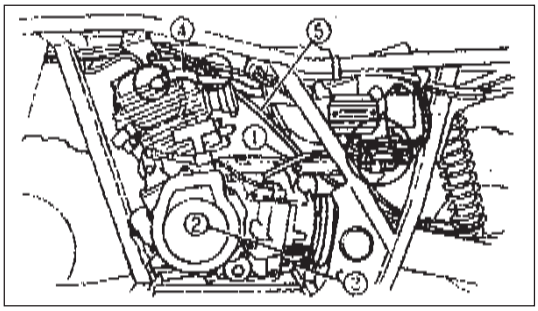
6.Rear brake cable and footrest
1)Remove
.Adjusting nut ¢Ù
.Pin ¢Ú
.Spring¢Û
.Rear brake cable and tension rod¢Ü(Remove from rear brake arm)



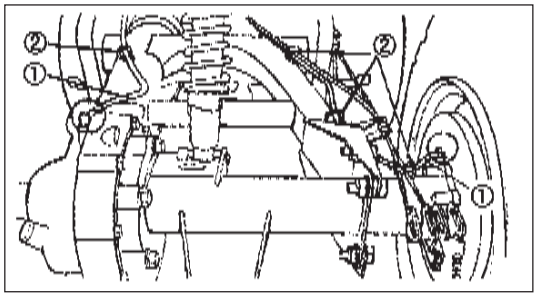
2)Remove
.Left footrest ¢Ù
.Shift pedal ¢Ú
.Supporting rod of front fender¢Û



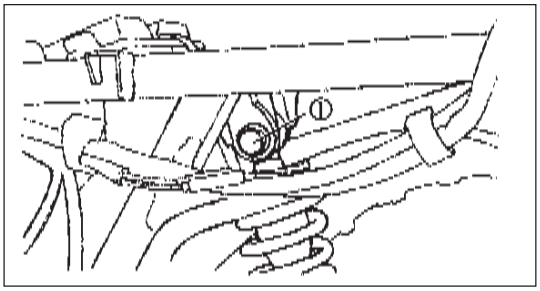
3.Remove
.Right footrest ¢Ù
.Spring¢Ú



7.Wire and hose
1)Remove
.Spark plug cap
.CDI magneto wire ¢Ù
.Reverse switch wire ¢Ú
.Neutral switch ¢Û
.Air pipe ¢Ü

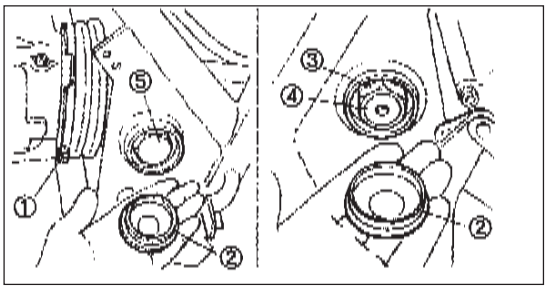


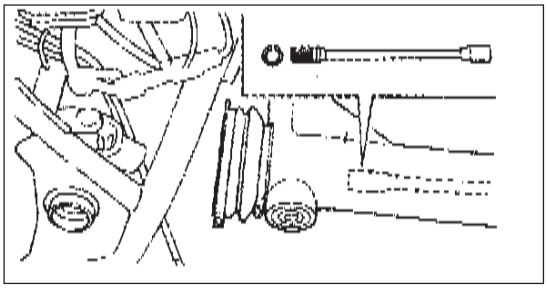
8.Rear driving unit and rocker(rear wheel fork and shock absorber)
1)Remvoe
.Remvoe the air ¢Ù(air case of last grade and rear brake hub)from the clip on the frame.
.Fix the front wheel and raise up the rear wheel (place the supporter on the frame)



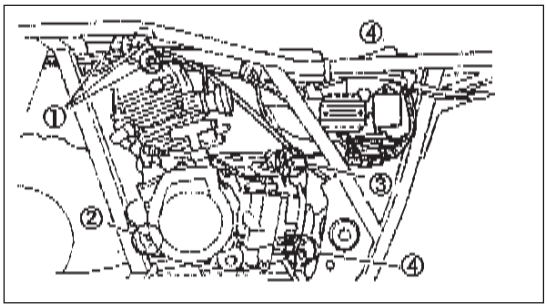
2)Remove
.Bolt ¢Ù(upper end of the rear shock absorber)

3)Remove
.Hoop ¢Ù(rubber hood)
.Dustproof cap of rear arm shaft ¢Ú
.Rear arm nut ¢Û(right)
.Connecting screw column of rear arm ¢Ü (right)
Connecting bolt of rear arm ¢Ý(left)

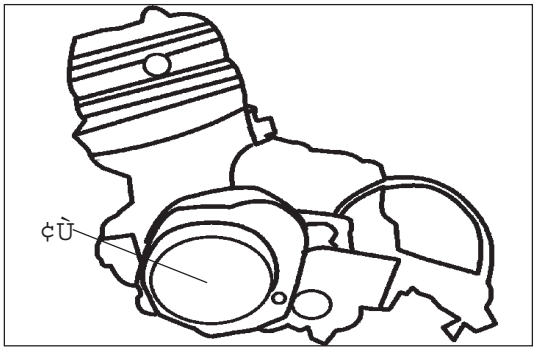




4)Remove
.Rear wheel driving unit /rocket assy
Caution:
.When disassembling the rocker assy, support the shock absrober to avoid droping down.
.When removing the rocker from the rubber hood, the driving shaft may drop down,Pay attention not to lose components.



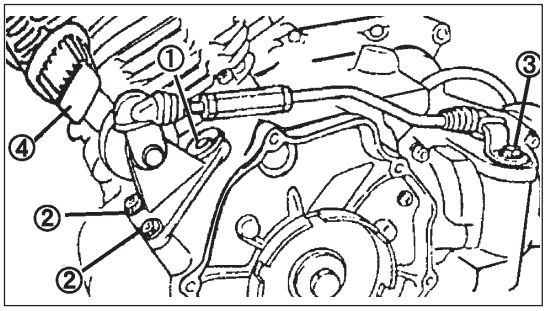
9.Disassembly of engine
1)Remove
.Bolt¢Ù(top supporting of engine)
.Bolt ¢Ú(bottom supporing of engine)
.Bolt¢Û(rear upper supporting of engine)
.Bolt¢Ü(rear lower supporting of engine)
2)Remove the engine unit from right side



(II) Disassembly of engine

1.Remove

.Hand starting unit ¢Ù



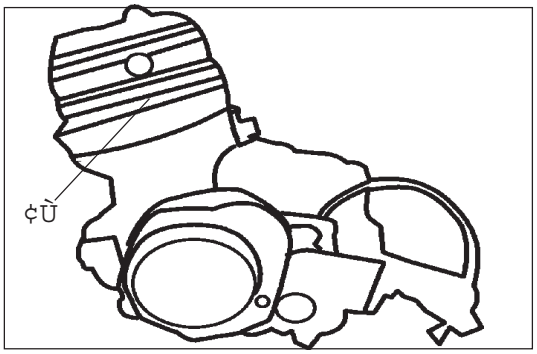
2.Remove

.Screw ¢Ù¢Ú¢Û

.Reverse controlling bar unit¢Ü

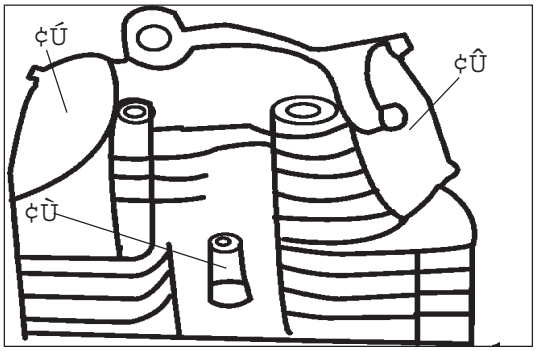
.Wahser

Pay attention not to lose washer



3.Remove

.Sproket cabinet cover ¢Ù

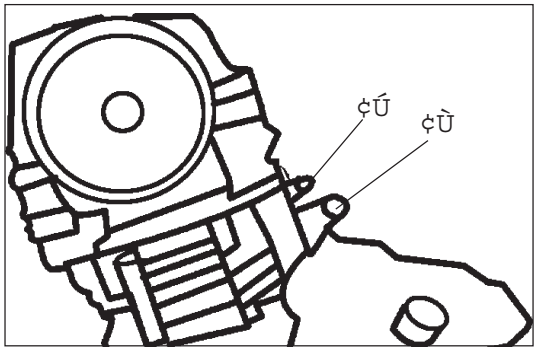


4.Remove

.Spark plug¢Ù

.Upper valve cap(intake)¢Ú

.Lower valve cap(exhaust)¢Û

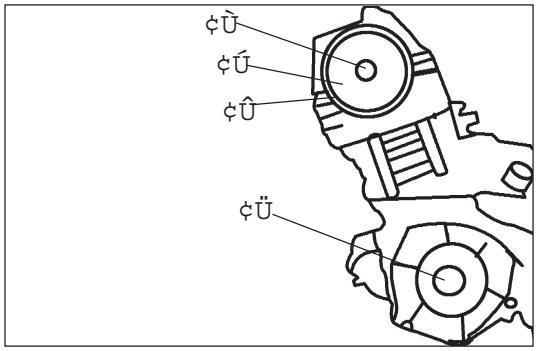


5.Remove

.Chain tensioner ¢Ú

Caution:

Before removing the chain tensioner, loosen the screw ¢Ùfirstly.



6.Remove

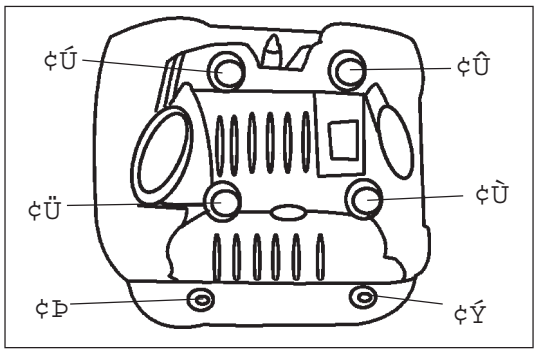
.Bolt

Timing sproket

Caution:

.When loosening the bolt, it is needed to fix the hand starting ratchet ¢Ü

.Grasp the metal wire ¢Ûto avoid the timing chain to drop into crankcase.



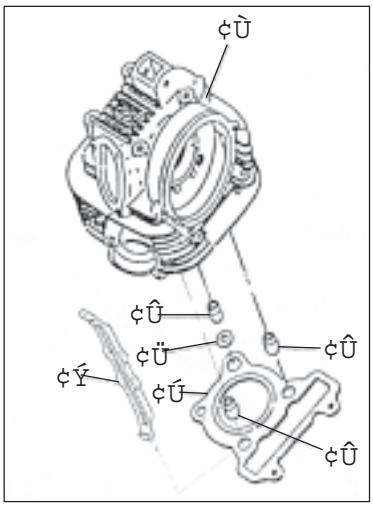
7.Remove

.All the bolts and nut on the cylinder cover.

Caution:

Loosen every bolt and nut by1/4 circle, then disassembly

.Loosen them, from big one to small one according to the numbers marked on the cylinder cover.



8.Remove

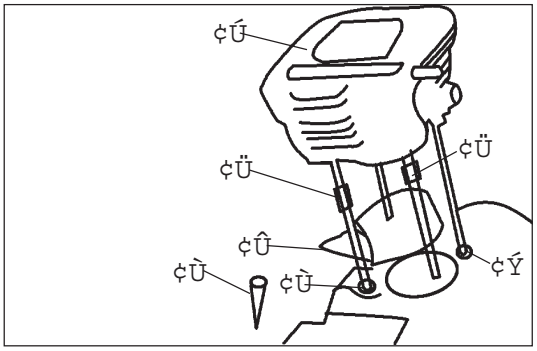
.Cylinder cover unit ¢Ù

.Cylinder cover pad ¢Ú

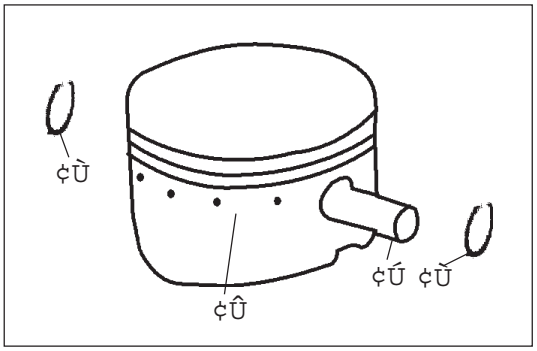
.Location pin ¢Û

.Oil seal ¢Ü

.Lower guide plate ¢Ý(exhaust side)

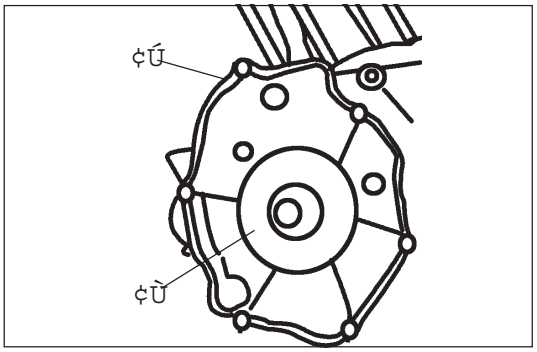


9.Remove
.Screw ¢Ù(cylinder body)
.Cylinder body assy ¢Ú
.Cylinder body pad ¢Û
.Location pin ¢Ü
.O-ring ¢Ý



10.Remove
.Circlip ¢Ù
.Piston pin ¢Ú
.Piston unit ¢Û

.Before disassembling the piston pin circlip, cover the crankcase with a clean cloth to avoid the circlip to drop into case suddenly.
.Before disassembling the piston pin, remove the burr of circlip groove and pistion pin. If it is still difficult to remove the piston pin, remvoe it with drawing aid
.Do not remove the piston pin with wood hammer

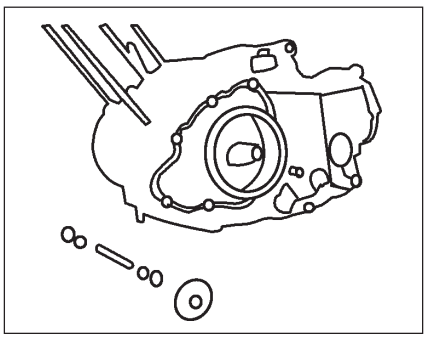


11.Remove
.Starting ratchet ¢Ù

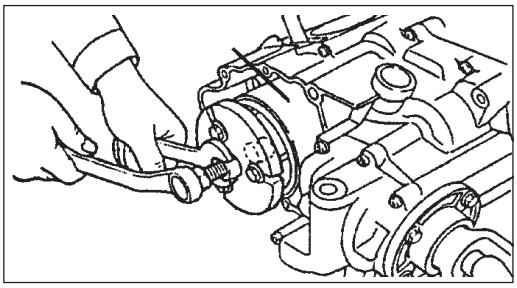
Caution

Fix the starting ratchet with special tool, and loosen the bolt on the starting ratchet.

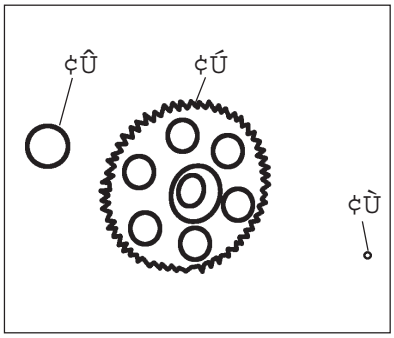
12.Remove
.Left crankcase cover ¢Ù



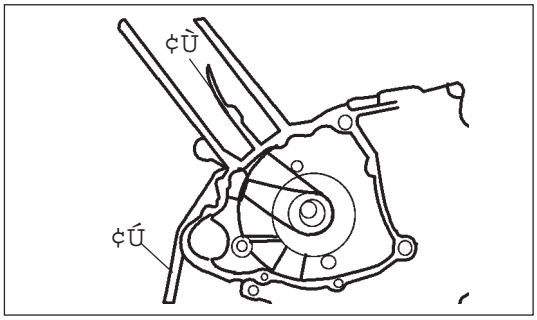
13.Remove
.Gasket of left crankcase cover ¢Ù
.Location pin ¢Ú
.Intermediate gear shaft ¢Û
.Washer ¢Ü
.Duplex intermediate gear(starting motor)



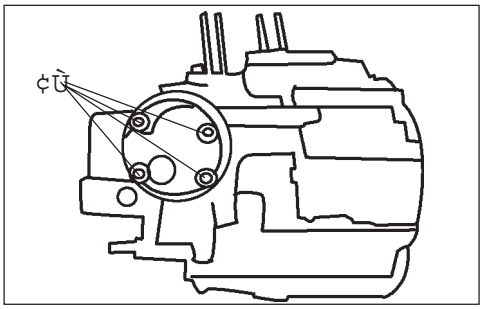
14.Remove
.Magneto ¢Ù
Caution:
Disassemble the magneto rotator with special tool



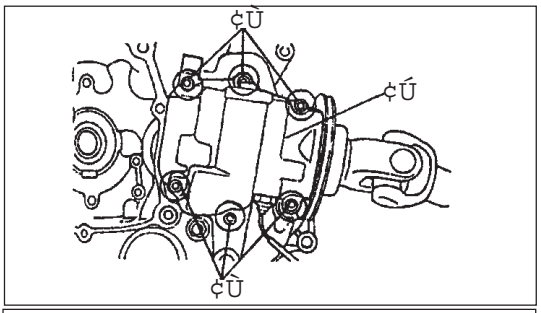
15.Remove
.Semicircle key ¢Ù
.Electric starting gear assy ¢Ú
.Washer ¢Û



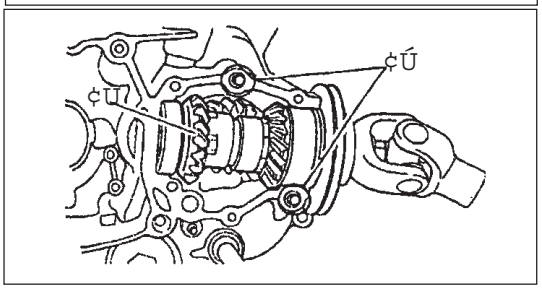
16.Remove
.Upper guide plate ¢Ù(air intake side)
.Timing chain¢Ú



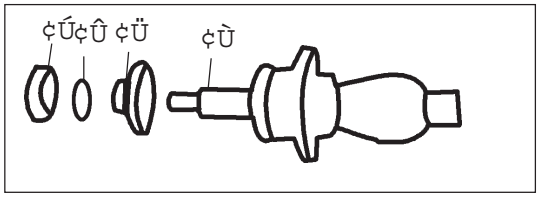
17.Remove
.Screw ¢Ù(rear cover)



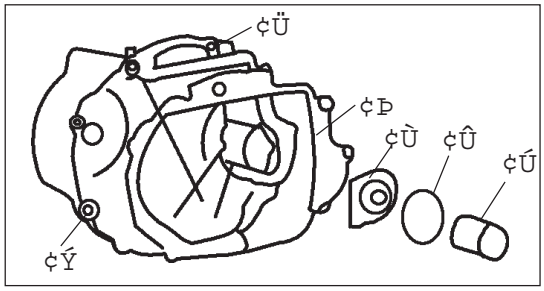
18.Remove
.Screw ¢Ù(rear driving cover)
.Rear driving cover ¢Ú



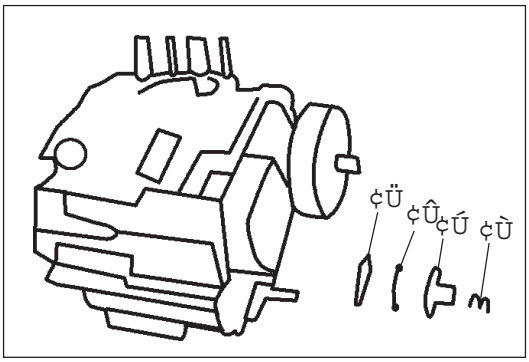
19.Remove
.Output shaft unit ¢Ù
.Location pin ¢Ú



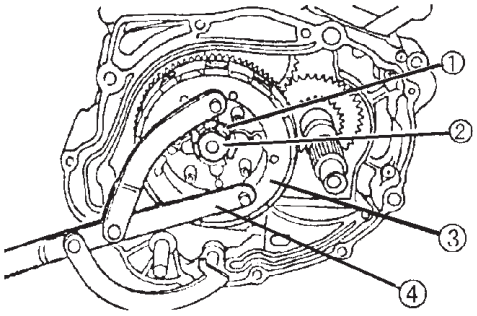
20.Remove
.Output shaft assy ¢Ù
.Bearing ¢Ú
.Washer ¢Û
.Forward gear ¢Ü



21.Remove
.Fine filter cover of engine oil¢Ù
.Fine filter of engine oil¢Ú
.O-ring ¢Û
.Right crankcase cover ¢Ü
.Location pin ¢Ý
.Gasket of right crankcase cover ¢Þ



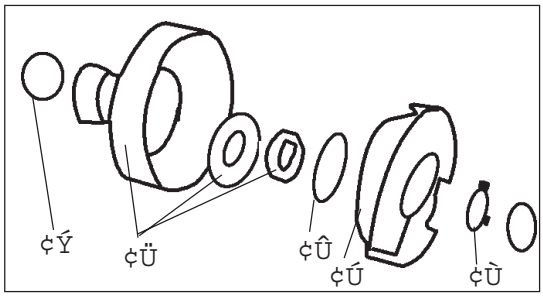
22.Remove
.Compressing spring ¢Ù
..Upper cam plate assy ¢Ú
.Steel ball bracket assy ¢Û
.Lower cam plate ¢Ü



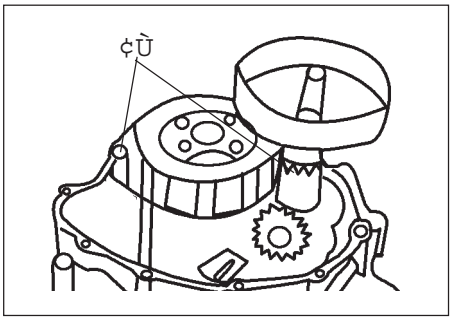
23.Remove
.Main clutchnut ¢Ú

Caution

Loosen the locking pad¢Ùbefore removing the nut, and fix the main clutch shoe¢Ûwith special tool¢Ü, then remove then nut.

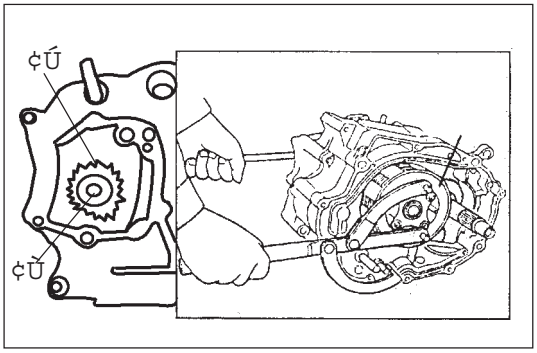


24.Remove
.Locking pad ¢Ù
.Main clutch shoe unit¢Ú
.Washer ¢Û
.Main clutch housing unit¢Ü
.Washer ¢Ý



Caution

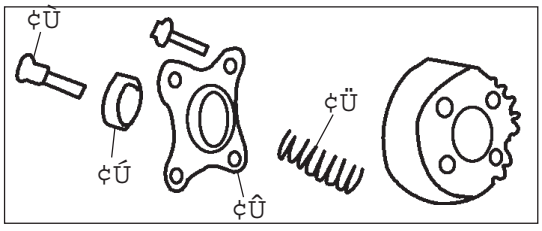
The two are grooves ¢Ùon auxiliary clutch when installing the main driving gear ¢ÚSo when removing the main clutch unit, must aim any one of the two are grooves at the main driving gear firstly.



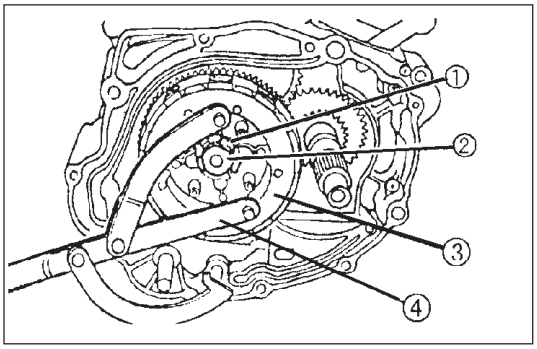
25.Remove:
.Nut ¢Ù
.Ouput gear ¢Ú

Caution

.Slap flat the self-locking part of the nut
.Place the engine to 1st gear to operate
.When loosening the nut(output gear),must fix the auxiliary hub assy ¢Üwith special tool.



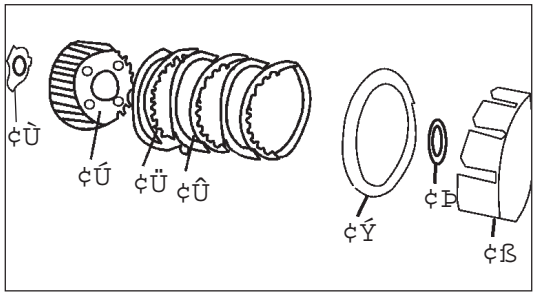
26.Remove
.Clutch post rod ¢Ù
.Bearing ¢Ú
.Compressing cover ¢Û
.Clutch spring ¢Ü



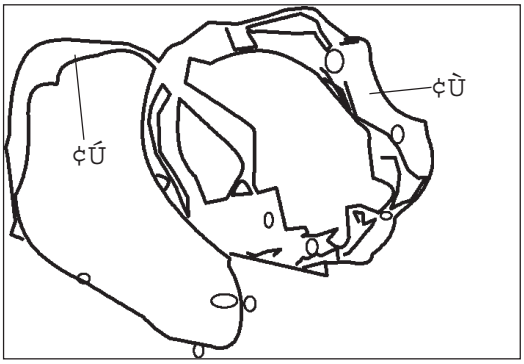
27.Remove
.Nut ¢Ú(clutch hub assy)

Caution

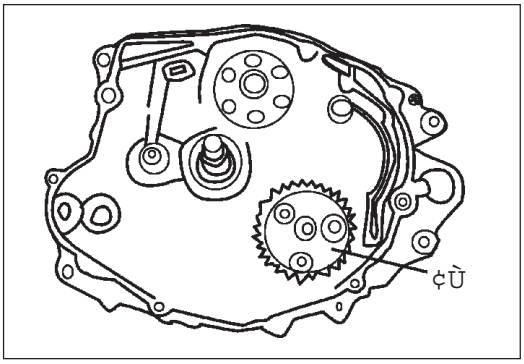
Slap the locking washer¢Ùflat before removing the nut. Must fix the clutch hub assy ¢Û with special tool when screwing the nut.



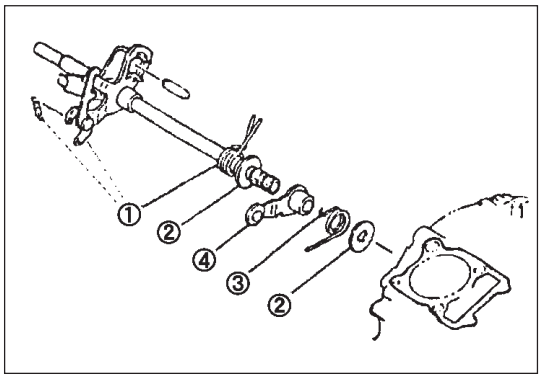
28.Remove
.Locking washer ¢Ù
.Clutch hub assy ¢Ú
.Friction wafer ¢Û
.Clutch piece ¢Ü
.Compressing plate ¢Ý
.Spline washer ¢Þ
.Clutch gear assy ¢ß

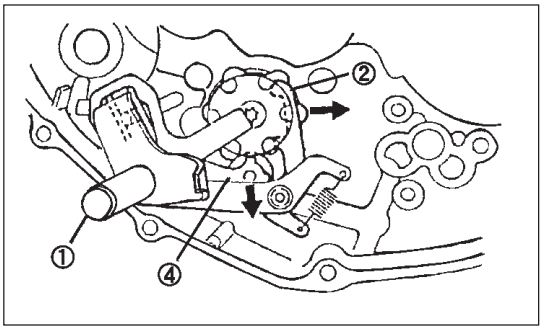


29.Remove
.Right connecting case ¢Ù
.Location pin ¢Ú
.Gasket of right connecting case ¢Û



30.Remove
.Oil pump unit¢Ù
.Pad





31.Remove
.Shift lever unit¢Ù
.Washer ¢Ú
.Limit torsion spring¢Û
.Limit lever unit¢Ü

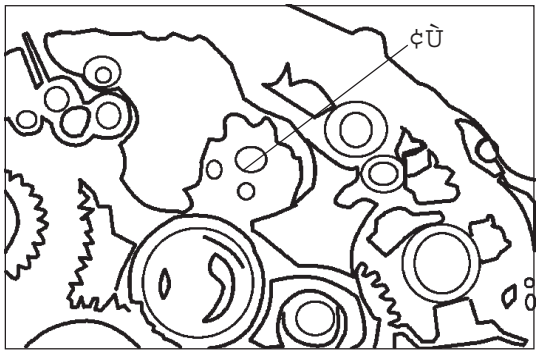
Caution

Pull the limit lever unit and shift lever unit along the arrow direction, then you can remove them from the star-shaped gear.

32.Remove
.Star-shaped gear ¢Ù(on shift cam)

Caution

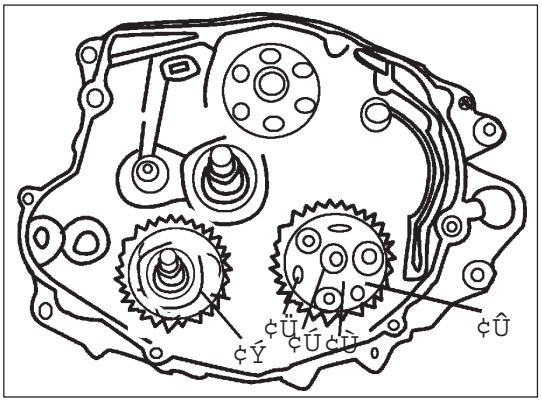
.The location pin is easy to drop down. pay attention not to lose it.

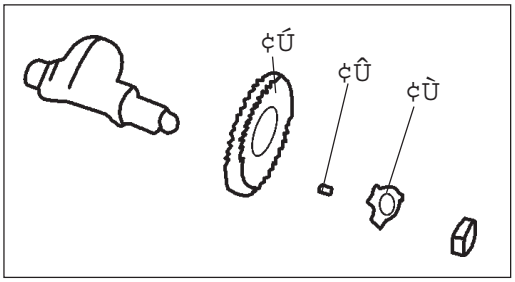


33.Remove
.Nut ¢Ú(balance shaft gear)

Caution

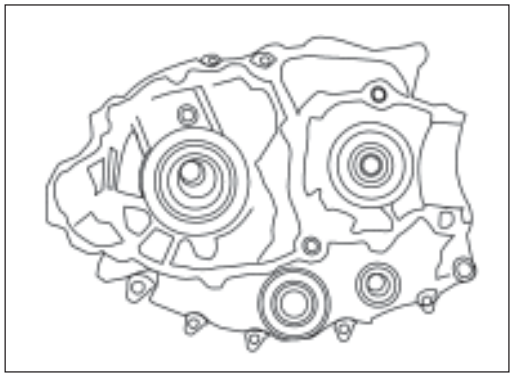
.Slap the locking washer¢Ùflat before removing the nut
.Put a cloth¢Ûfolded thickly between the balance shaft gear ¢Üand balance shaft driving gear ¢Ýfor seizing to prevent the rotation of the two gears when removing the nut.





34.Remove
.Locking washer ¢Ù
.Balance shaft gear ¢Ú
.Flat key ¢Û

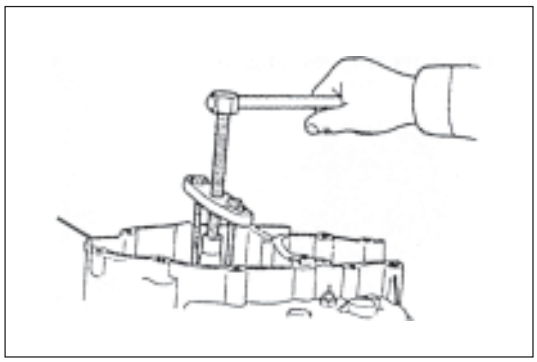
35.Remove
.All the closing case screw.



Caution

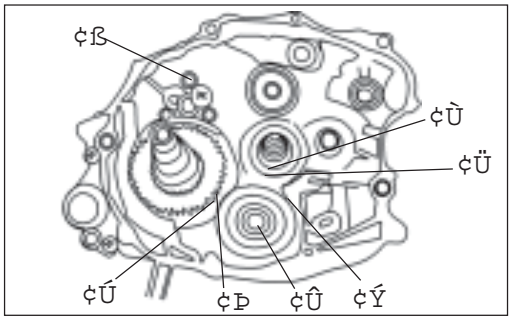
Loosen every screw1/4 circle with cross-slot screwdriver, then remove all of them

36.Remove
.Left crankcase ¢Ù
.Location pin ¢Ú



Caution

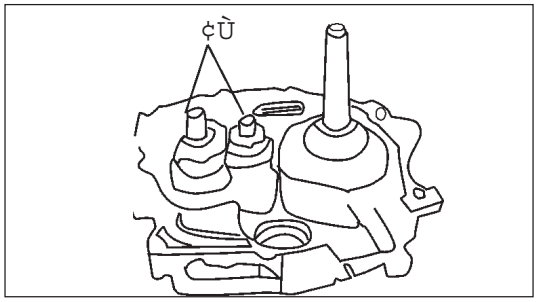
.Disassemble the left crank case with crank-case separator.
.Tighten up the screw of separator, and must keep th separator body parallel with crank-case face. If necessary, screw the screw in reverse direction to adjust the separator body level.
.When appling force to case body separator, knock the front supportor of engine, shift shaft and balance shaft alternatly and continuely.



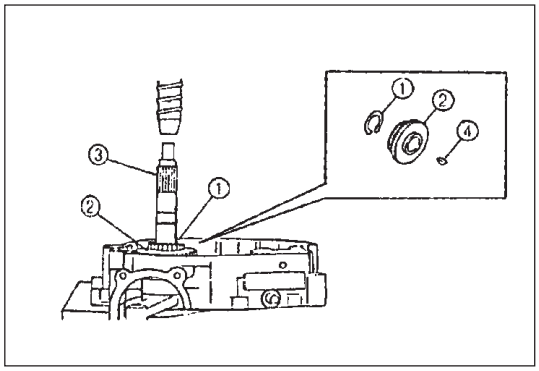
37.Remove
.Long fork shaft ¢Ù
.Short fork shaft ¢Ú
.Shift cam shaft ¢Û
.Fork 3 ¢Ü
.Fork 2 ¢Ý
.Fork 1 ¢Þ

Caution

Pay attention to position of every part, especially the position and direction of every fork.



38.Remove
.Main shaft assy and driving shaft unit ¢Ù
.Washer ¢Ú(driving shaft unit)

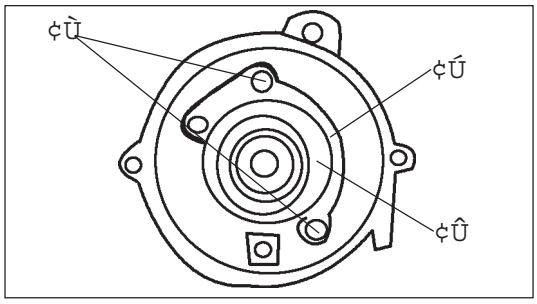


39.Remove
.Circlip ¢Ù
.Balance shaft driving gear ¢Ú
.Crankshaft ¢Û
.Semicirlcle key ¢Ü

Caution

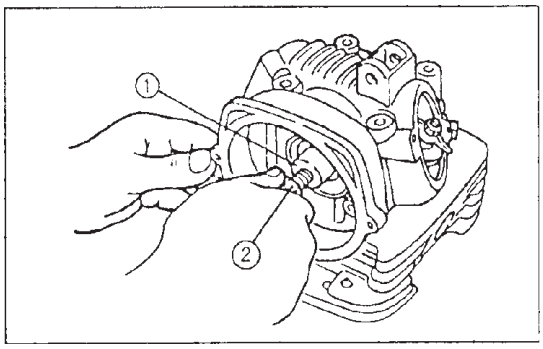
.Press out the crank shaft with pressure device.

40.Remove
.Stop plate ¢Ú
.Pressing plate ¢Û



Caution

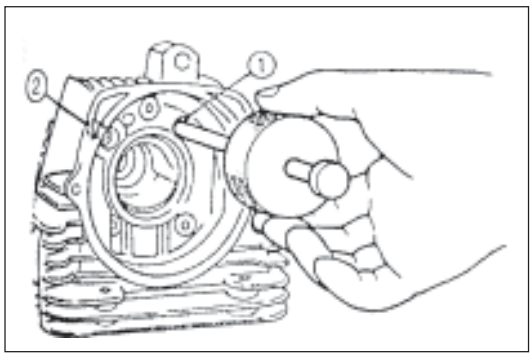
Knock the locking part ¢Ùof stop plate flat before removing the stop plate.



41.Remove
.Distribution cam shaft ¢Ù

Caution

.Screw in the bolt ¢Ú10mm to cam shaft screw hole to draw out the distribution cam shaft.

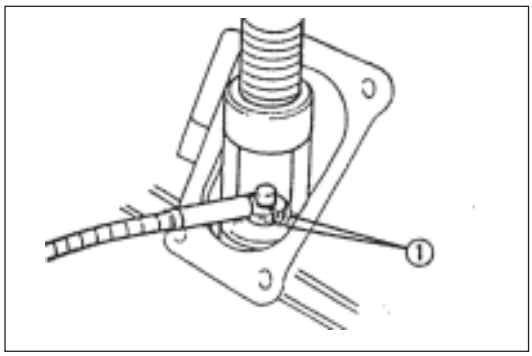


42.Remove
.Rocker shaft ¢Ù
.Air intake and exhaust rocker ¢Ú

Caution

.Screw the slip hammer assy into rocker shaft, then pull out the rocker.

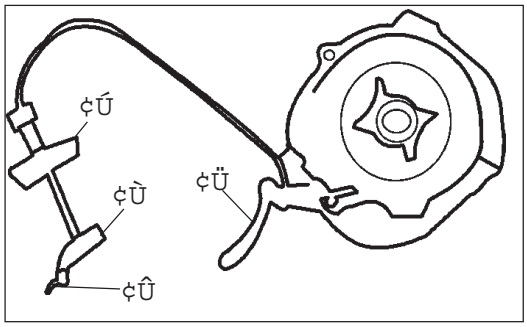
43.Remove
.Valve lock clip ¢Ù



Caution

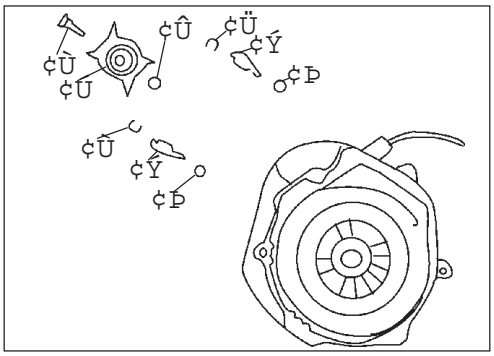
.Disassemble the valve lock clip with valve spring compressing device.

44.Remove
.Valve spring cover ¢Ù
.Valve outer spring ¢Ú
.Valve inner spring ¢Û
.Valve ¢Ü
.Oil seal of valve rod ¢Ý
.Spring seat of valve ¢Þ



Caution

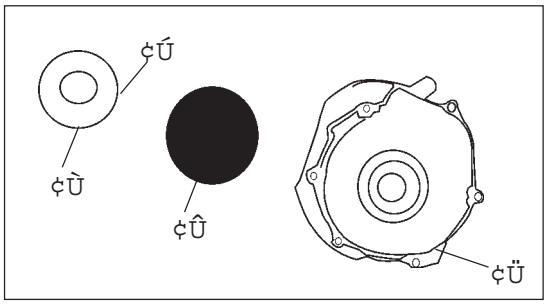
.Pay attention to position of each component for installation to original position.
45.Remove
.Starting lever cap ¢Ù
.Starting lever ¢Ú



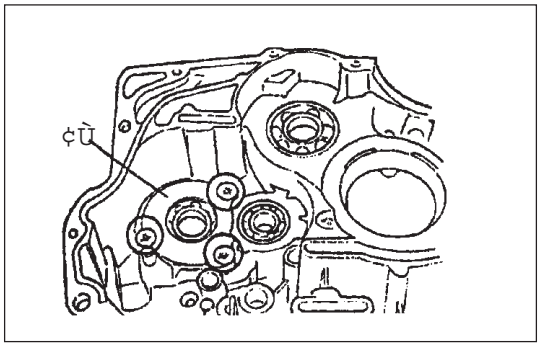
Caution

.Before uniting the knot ¢Ûpull out the rope long enough to tie a knot to avoid to be pulled into the cap

46.Remove
.Screw pin ¢Ù
.Guide plate ¢Ú
.Compressing spring ¢Û
.Circlip ¢Ü
.Driving jaw ¢Ý
.Torsion spring ¢Þ

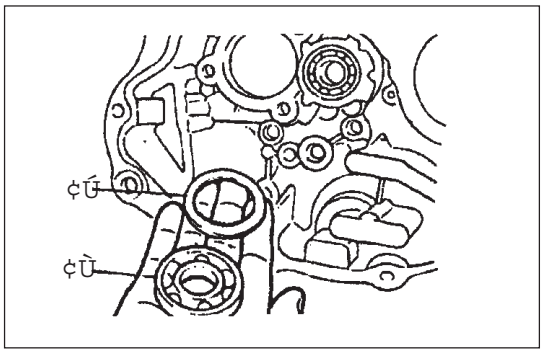


47.Remove
.Coiling spring¢Ù
.Coiling spring backboard¢Ú
.Driving plate assy ¢Û
.Left sidecover assy ¢Ü



48.Remove
.Pressure plate ¢Ù

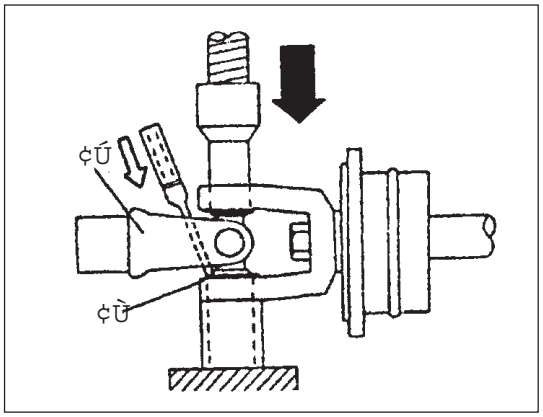
Caution
.Remove the screw with impact screwdriver

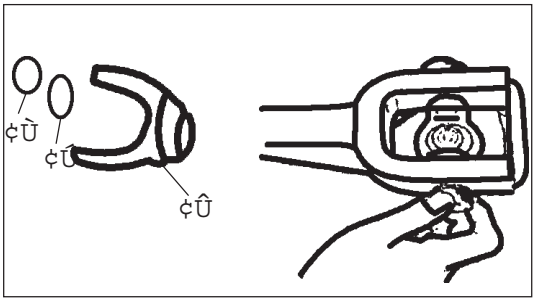


49.Remove
.Bearing ¢Ù
.Washer ¢Ú

50.Remove
.Circlip¢Ù
.Rear joint ¢Ú

Caution
The disassembling method of rear joint is as following:
.Pull and press the driving fork downward
.Use a sleeve with proper diameter below the front joint, and press the earing into the sleeve as shown as figure.
.Repeat the procedure to corresponding bearing
.Repeat the driving fork and rear joint ¢Ú

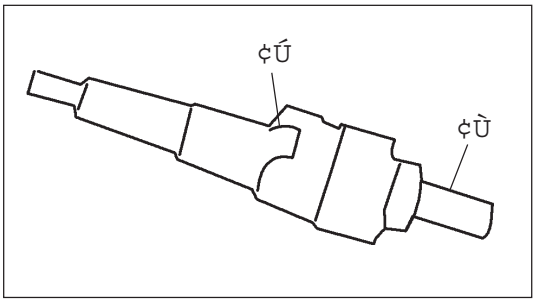




51.Remove
.Nut ¢Ù
.Washer ¢Ú
.Front joint ¢Û

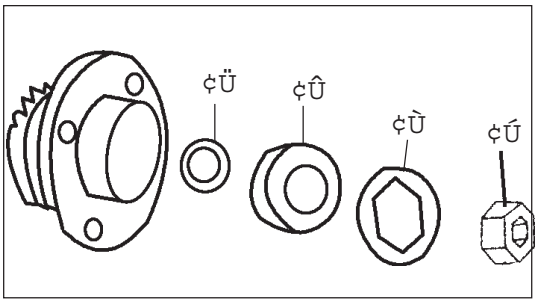
Caution

Clamp the front joint with gymbals, then loosen the nut.



52.Remove
.Output shaft ¢Ù
.Connecting jaw ¢Ú

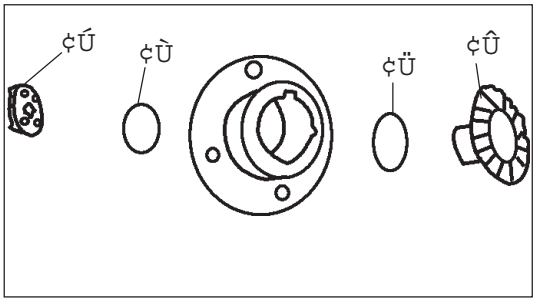
53.Remove
.Inner-hexagon screw bushing ¢Ù
.Bearing ¢Û
.Washer ¢Ü



Caution

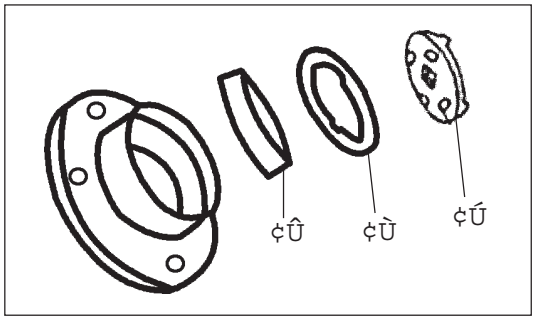
Use inner-hexagon screw bushing wrench ¢Ú

54.Remove
.Irregular left handed nut ¢Ù
.Reverse gear ¢Û
.Washer ¢Ü



Caution

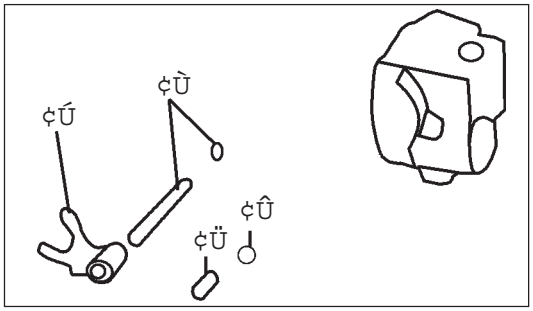
.The irregular left handed nut is left handed screw thread, Rotate the nut clockwise when loosening it.
.Use irregular nut wrench ¢Ú



55.Remove
.Nut ¢Ù
.Bearing ¢Û

Caution

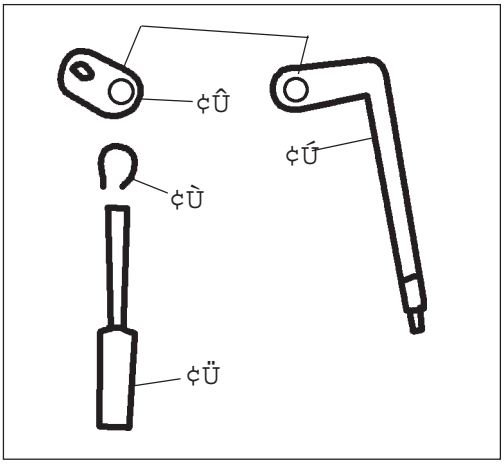
Use inner-hexogon screw bushing wrench ¢Ú



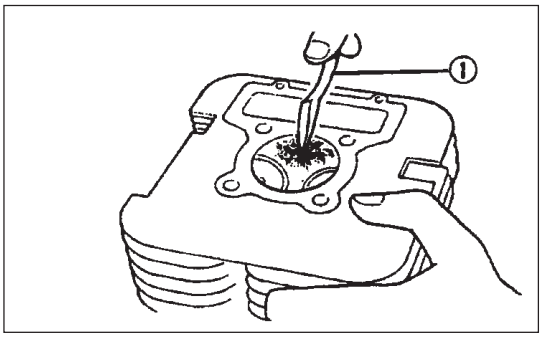
56.Remove
.Reverse fork shaft ¢Ù
.Reverse fork ¢Ú
.Steel ball ¢Û
.Compressing spring ¢Ü

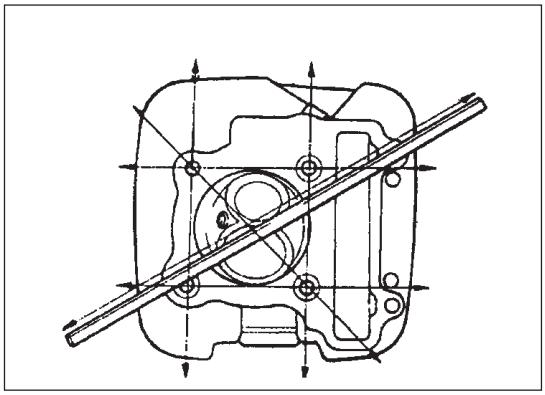
Caution

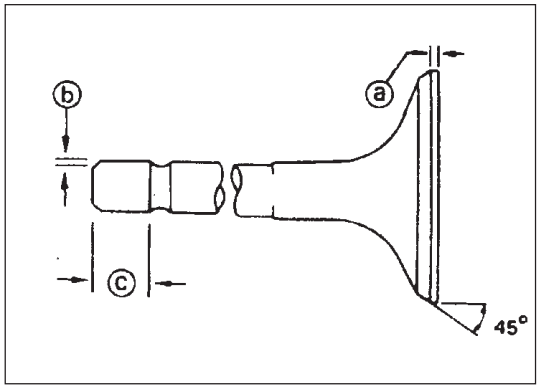
When disassembling the reverse fork shaft, the steel ball is easy to rollout. Pay attention not to lose it.

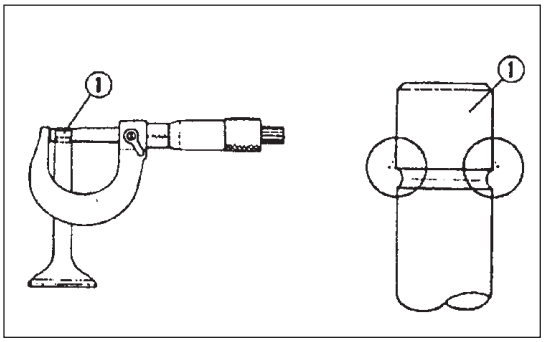


57.Remove
.Circlip ¢Ù
.Reverse controlling rod ¢Ú
.Reverse controlling rod ¢Û
.Reverse controlling shaft ¢Ü









1.Cylinder cover
1)Clean
.Carbon eposit
Use circular scraper ¢Ù

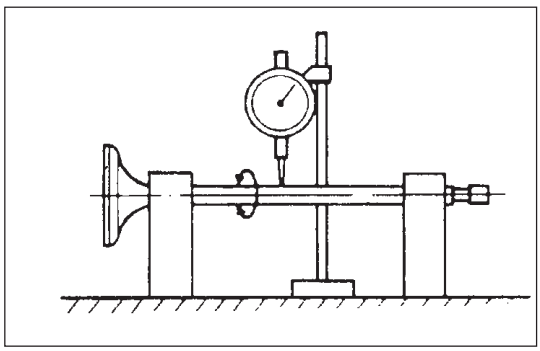
Caution

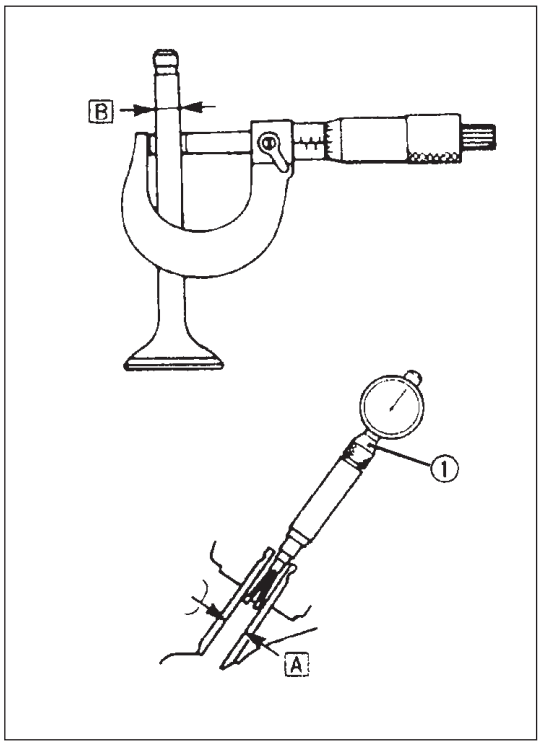
Please do not use sharp tool to avoid scraping
.Nut of spark plug
.Valve seat ring
.Bottom face of cylinder
2)Measure
.Flatness of cylinder cover bottom face
Recorrect the bottom face or replace if unqualified
Flatness of cylinder bottom face is less than 0.10mm(0.004in)

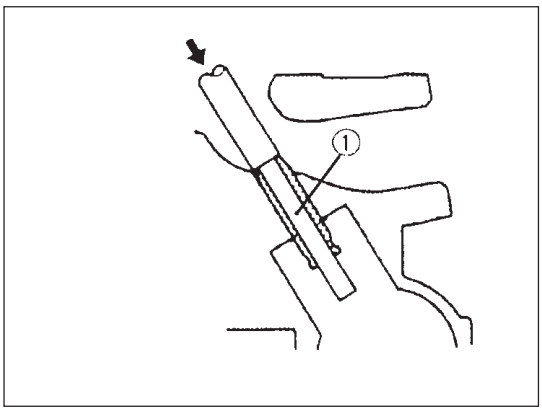
2.Intake and exhaust valve
1).Check
.Valve surface
.Valve rod end
Repalce it if it is worn, exfoliation corroded or unqualifled
Min thickness (working limit)
ⓐ0.8mm(0.031in)
Slope
ⓑ 0.05mm(0.020in)
Min length (working limit)
ⓒ4.0mm(0.157in)
2)Check
.Valve rod end ¢Ù
Repalce the valve, valve guide pipe and valve rod oil seal if it is mushroom-shaped or its diameter is bigger than other rod diameter.

Caution

Remove the deformation of valve rod end ¢Ù by polishing the valve end with oilstone.







3)Measure

.Rod part run-out of valve rod

Replace it if unqualified

The rod part run-out of valve rod is less than (0.03mm0.0012in)

4)Measure

.Clearance between valve rod and valve guide pipe

Clearance=A-B

Inner diameter of valve guide pipe A

Valve rod diameter B

Repalce the valve or valve guide pipe if unqualified.

Measure with micrometer and inner diameter gauge ¢Ù

	Clearance between valve rod and valve guide pipe	Limit
Intake valve	0.010~0.037mm (0.004~0.0015 in)	0.08mm (0.0031 in)
Exhaust valve	0.025~0.052mm (0.0010~0.0020 in)	0.10mm (0.0039 in)

Caution

.When replacing the valve, should replace the valve guide pipe and valve rod oil seal together.

3.Valve guide pipe

1)Check

.Valve guide pipe

Replace it if it is worn or the oil leaks into the cylinder

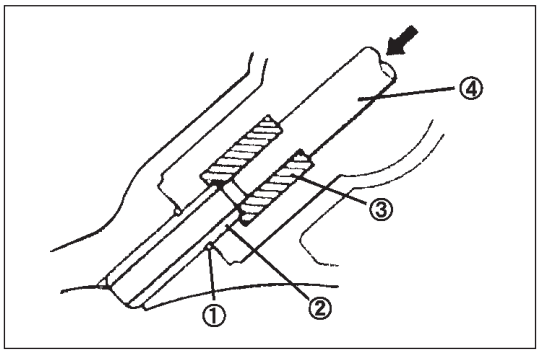
2)Disassemble

.Valve guide pipe

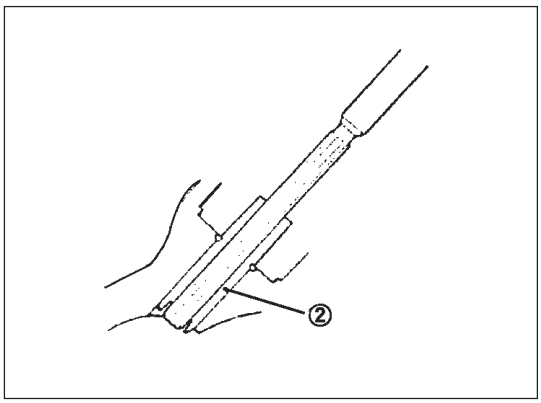
Use valve guide pipe diassembling device¢Ù

Caution

Place the cylinder cover in the furnace to heat to 100 ¡æ(212F)for the econvience of disassembly and installation of valve quide pipe. And it can ensure correct installating clearance.



3)Install
.Circlip ¢Ù(new)
.Valve guide pipe ¢Ú(new)
Use the installing and disassembling device of valve guide pipe

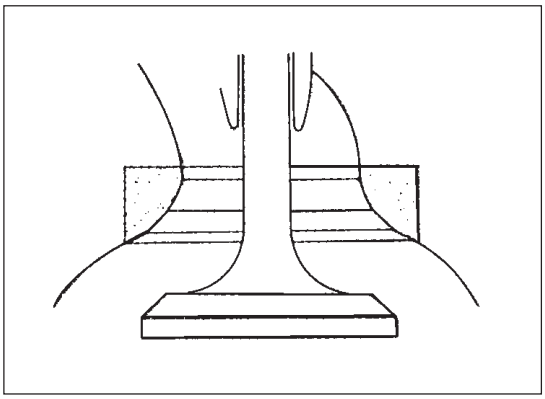


4)Ream the inner diameter of valve guide pipe to get proper valve rod clearance.

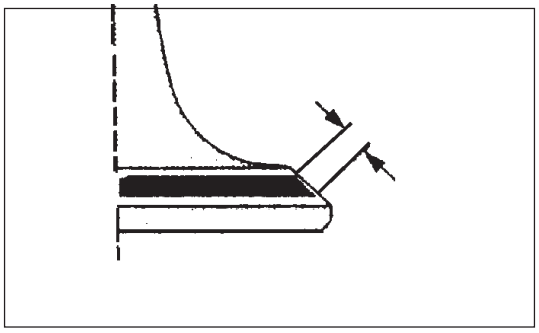
Caution

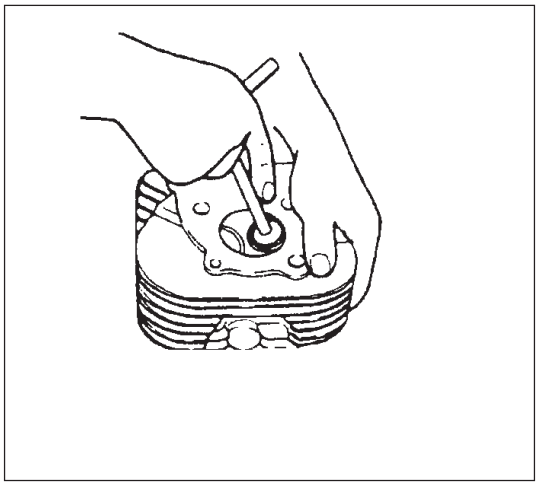
Regrind the valve race after installing valve guide pipe

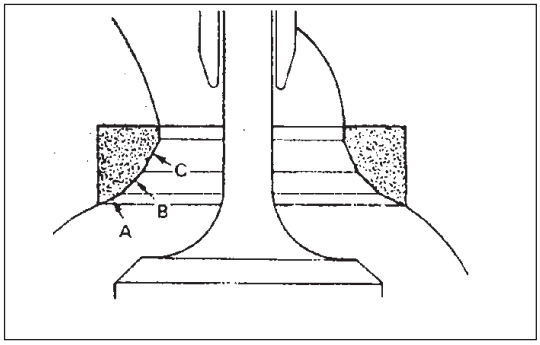
4.Valve race
1).Clean
.Carbon deposit(valve raue and value face)
2)Check
.Valve seat ring
Regrind the valve if it is exfoliation corroded.

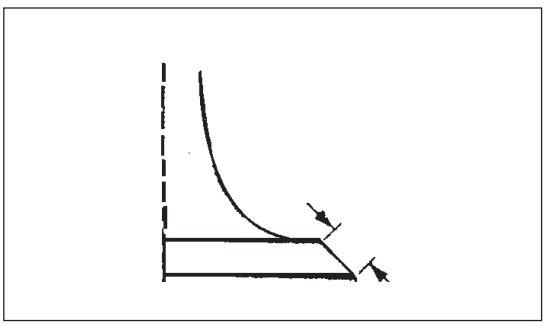


3)Measure
.Contacting width of valve and valve race.
Regrind the valve race if unqualified.
.Paint red lead powder on the valve fit pyramidal foce of valve race
.Place the valve into the cylinder cover.









.Press the valve on through valve guide pipe to leave clear trace on the valves.
.Remove the valve from cylinder cover
.When the valve contancts with valve race, the redle is marked on the valve form vavle race, Then can measure the contacting width of valve and valve race.

	Contactingwidth of valve and valve race	Limit
Intake	0.9~1.1mm (0.035~0.043mmin)	1.6mm (0.063in)
Exhaust		

.If the contacting width is too wide, too narrow or not in the middle, it is necessary to recorrect valve race

4)Correct
.Valve race
Use reamers of30¡ã.45¡ãand60¡ã

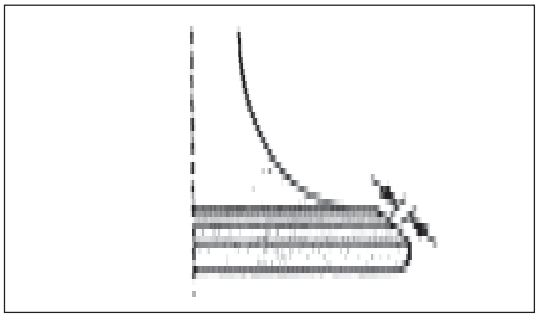
Caution

Rotate the reamer with even force to avoid cutting mark. And remove surplus part to get ideal valve race.

Reamer used on each part	
Part	Reamer
A	30¡ã
B	45¡ã
C	60¡ã

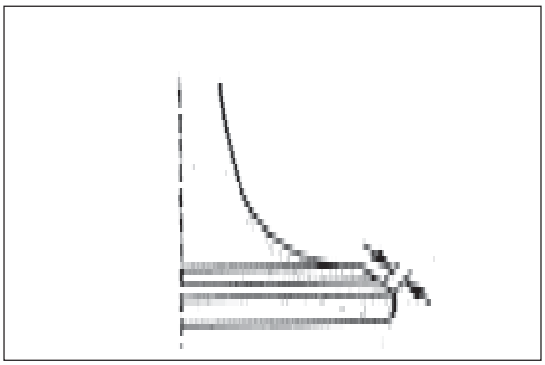
Valve race correcting procedure
The contacting part A is in the middle of valve face. But the contacting width is too wide.

Reamer assy of valve race		Result
Operate lightly	Reamer 30¡ã	Reduce the contacting
	Reamer 60¡ã	width to 1.0mm(0.04 in)



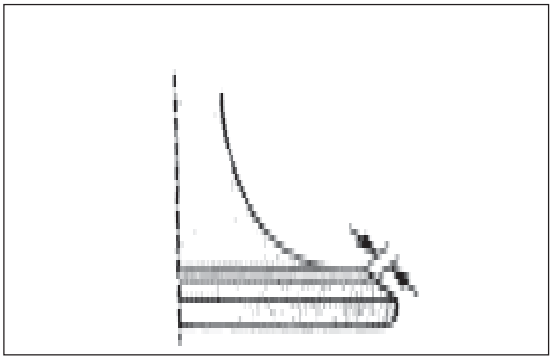
The contacting part B is the middle of valve face. But the width is too narrow

Reamer assy of valve rale		Result
Use	Reamer 45¡ã	Get unified contacting width 1.0mm(0.04 in)



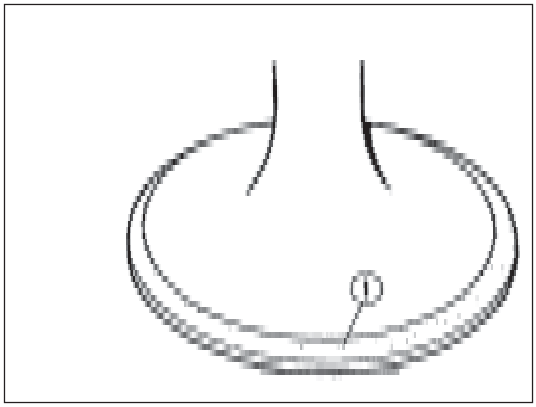
The contacting part C is too narrow, and on the upper edge of valve face

Reamer assy of valve rale		Result
Use	Reamer 35¡ã	Make the contacting part in the middle and get the contacting width 1.0mm(0.04in)
	Reamer 45¡ã	



D The contacting part is too narrow and on the bottom of valve.

Reamer assy of valve rale		Result
Use	Use reamer of 30¡ã firstly	Make the contacting part in the middle and increase the width
	Reamer of 45¡ã	



5)Grind
.Valve face
.Valve race

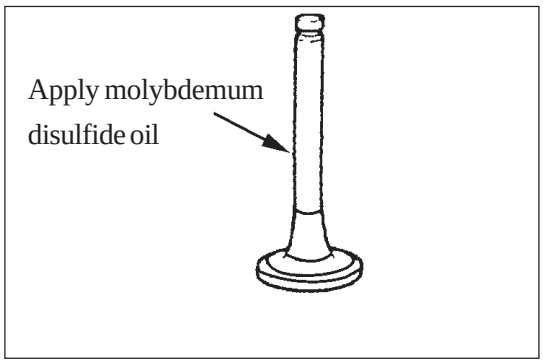
Caution

Should grind the valve face and valve race after correcting the ralve race or replacing valve and valve guide pipe.

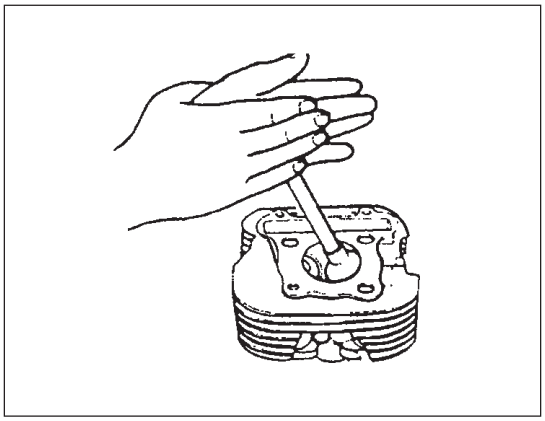
Grinding procedure of valve face
.Paint a layer of grinding powder¢Ù

Caution

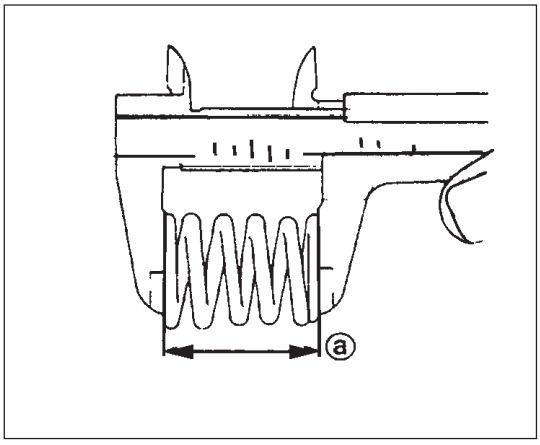
Ensure no grinding power entering the clearance between the valve and valve guide pipe.



.Pain molybdenum disulfide oil on the valve rod part.
.Place the valve into the cylinder cover
.Rotate the valve to grind in with seat fully on the valve face, then clean the dirty
.repeat procedure until the contacting width of valve face and valve seat

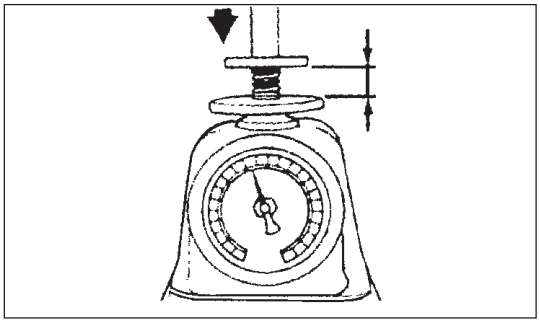


In order to get the best grinding quality, you may slap the valve lightly when rotating the valve forward and backward.Be sure to clean all the dirty on the valve face and valve race after every grinding.
6)Measure the contacting width again after correcting and grinding
.Meassure the contacting width and position of valve and valve race again according to method explained in3
.If the contacting width and position do not conform to specification yet, recorrect and grind the valve race.



5.Valve spring
1)Measure
.If the free length @(inner and outer spring) of valve spring unqualified, replace it.

Free length of valve spring	
Inner spring(intake/exhaust)	Outer spring(intake/exhaust)
35.5mm(1.4 in)	37.2mm(1.46 in)

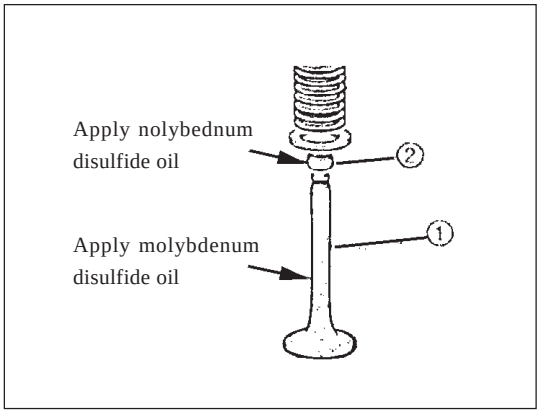


2)Measure

.Installing pressure of valve spring

If unqualified, replace the inner and outer spring totally.

Installing pressure of valve spring	
Inner spring(intake/ exhaust)	When it is 30.5mm(1.2 in),the pressure8.4~10.2kg(18.5~22.5pods)
Outerspring(intake/ exhaust)	When it is 32.0mm(1.26 in),the pressure16.6~20.4kg(36.6~45.0pods)



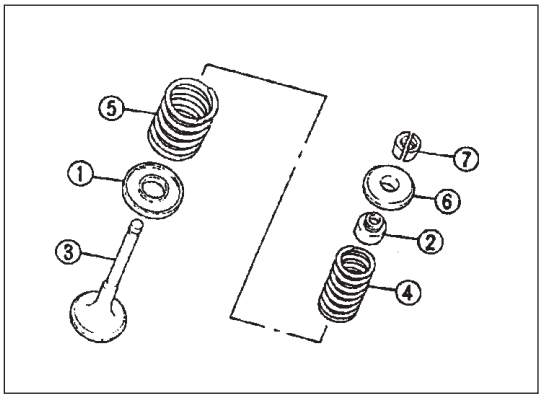
6.Seal check of valve

1)Installation of valve

Lubricate

.Valve rod part ¢Ù

.Valve rod oil seal ¢Ú



Install

.Valve spring seat ¢Ù(Lower part)

.Oil seal of valve rod ¢Ú

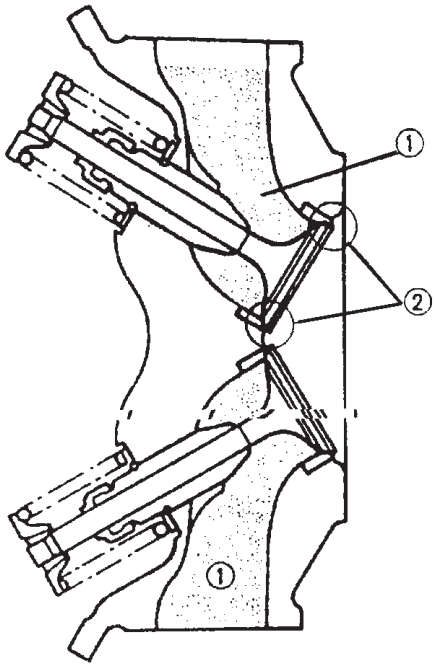
.Valve ¢Û

.Inner spring ¢Üof valve

.Outer spring ¢Ýof valve

.Spring cover ¢Þof valve

.Locking clip ¢ßof valve



Caution

Must install the long pitch end of all valve spring upward.

2)Check the valve seal

If there is leakage on the valve face, repair again and regrind or replace the valve and regrind.

Inspecting procedure of valve seal

.Inject the clean solvent ¢ùinto intake way and exhaust way respectively.

.Check the valve seal. There should be no leakage on valve race ¢ú

3)Regrinding procedure

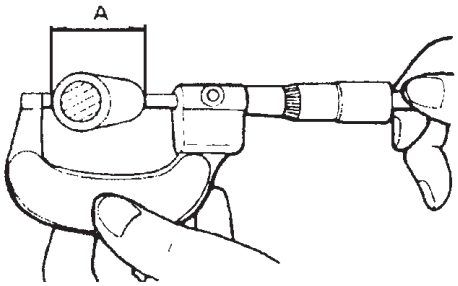
.Remove components of the cylinder cover again

.Grind repeatedly with fine grinding powder.

.Clean totally

.Reassemble and check the leakage with solvent

.Repeat above procedures until getting ideal seal



7.Distribution cam

1)Check

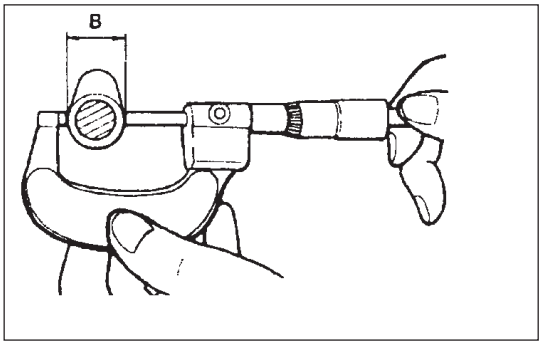
.Distribution cam

Replace if there is cave, scratch or discoloration

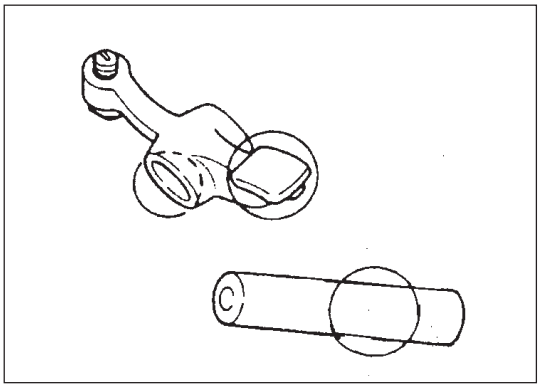
2)Measure

.Distribution cam(use micrometer)

Unqualified ¡úReplace



	Limit value “A” of distribution cam	Limit value “B” of distribution cam
Intake cam	36.437mm (1.435 in)	30.031mm (1.182 in)
Exhaust cam	36.482mm (1.436in)	30.152mm (1.187 in)



8.Valve rocker and rocker shaft

1)Check

.Rocker hole

.Contacting surface with distribution cam

If over worn, replace it

2)Check

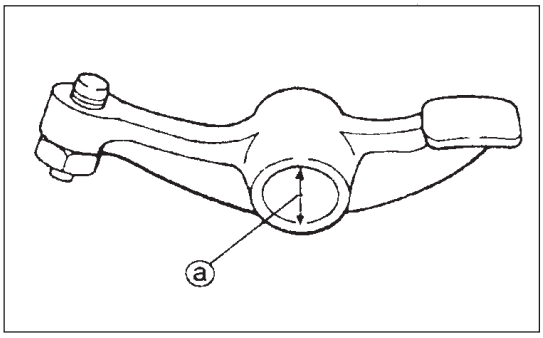
.Rocker shaft surface

Replace or check lubrication if there is bent, scratch or discoloration

3)Measure

.Measure inner diameter of valve rocker hole

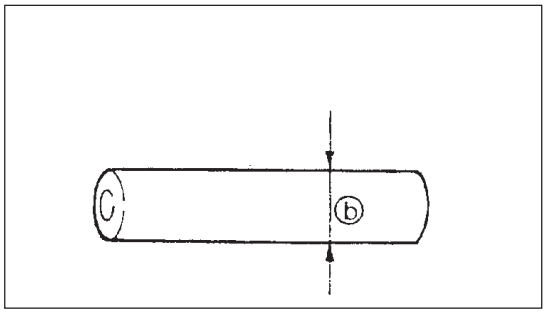
Replace it if unqualified



Inner diameter of rocker hole:12.000~12.018mm (0.4724~0.4731 in)

.Measure the outer diameter ⓑ of rocker shaft

Replace it if unqualified



Outer diameter of rocker

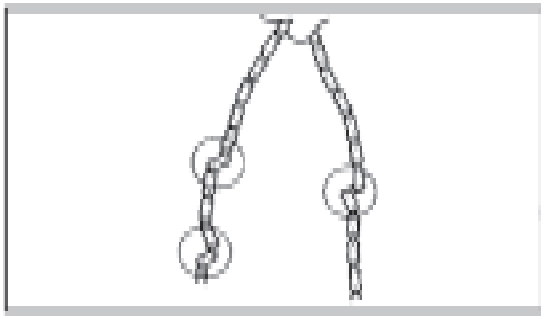
11.985~11.991mm(0.4718~0.4721 in)

.Substract the outer diameter of rocker shaft from inner diameter of valve rocker hole to calculate the clearance.

Clearance between rocker hole and shaft=@-ⓑ
Inner diameter of valve rocker hole@
Outer diameter of rocker shaft ⓑ

Replace a set if unqualified

Clearance between rocker shaft and hole: 0.009-0.037mm(0.0004-0.0031 in) Limit: 0.037mm(0.0015 in)



9.Timing chain

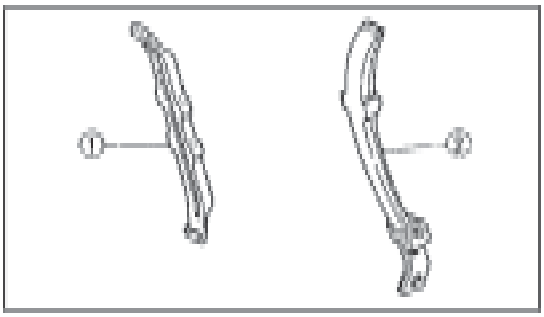
Check

.Timing chain

Replace it if the chain is stretched, or not flexible or broken.

10.Timing sprocket and crankshaft sproket

Check



.Crankshaft sproket (on crankshaft)

If there is wear and damaged, replace the sproket and chain totally

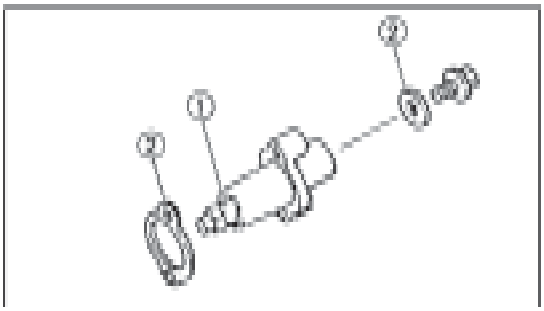
11.Guide plate

1)Check

.Lower guide plate ¢Ù(exhaust side)

.Upper guide plate ¢Ú(intake side)

Replace it if it is worn or damaged



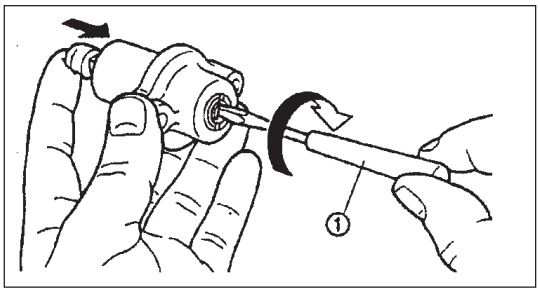
12.Chain tensioner

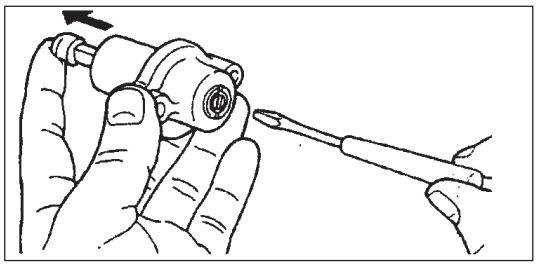
1)Check

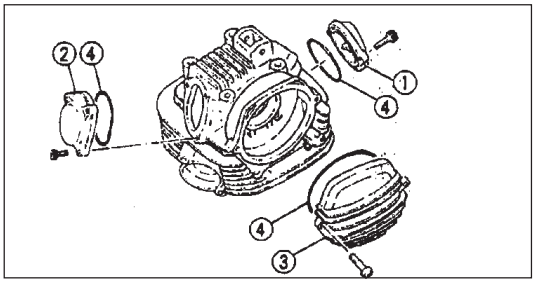
.Pushing rod of chain tensioner¢Ù

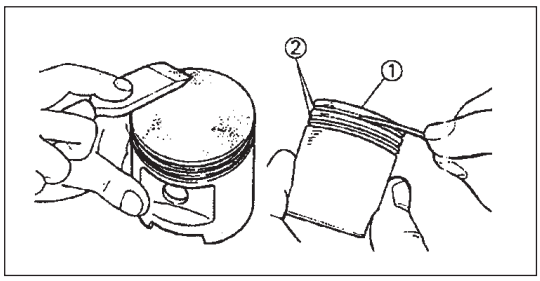
.Washer ¢Ú

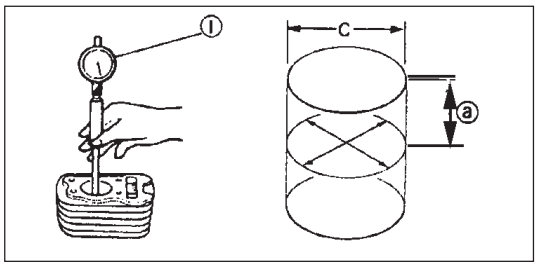
Replace it if it is worn or damaged

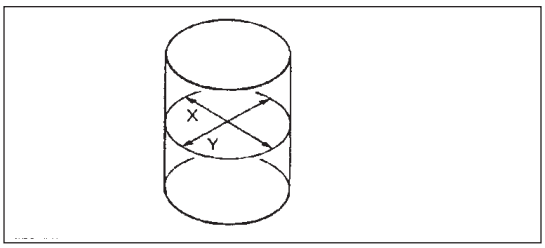










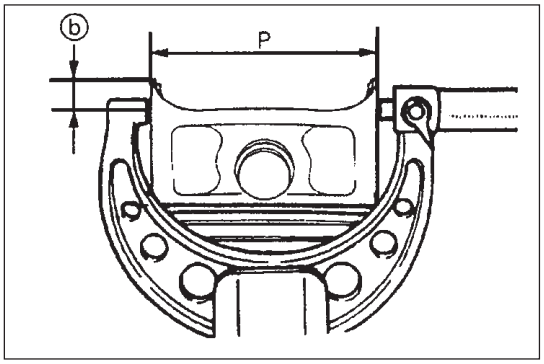


2)Check
Flexibility of chain tensioner
Checking procedure
.Press the tensioner pushing rod lightly with finger, ad rotate it clockwise with thin screw-driver to screw it in.
.Press the pushing rod lightly with finger and remove the screwdriver, then the pushing rod screws out stably
.If the operation is unflexible, replace chain tensioner.

13.Valve cover and sproket cabinet cover
1)Check
.Valve cover (upper valve cover ¢Ùand lower valve cover ¢Ú)
.spocket cabinet cover ¢Û
.O-ring ¢Ü
Replace it if there is crack and damaged

14.Cylinder and piston
1)Check
.Carbon deposit (from piston top to ring slot)
2)Check
.Surface of cylinder and piston
Rebore cylinder or replace cylinder and piston if there is vertical scratch.
3)Measure
.Clearance between cylinder and piston
Measuring method is as following
.Measuring the inner diameter “C”of cylinder with inner diameter gauge@is the measuring position @is 40mm(1.6 in)far away from cylinder top
Remark:
Measure twice the inner diameter “C”of cylinder from two directions vertical with each other in the same face. Then find out average value.

	Standard value	Wear limit value
Inner diameter “C”of cylinder	70.97-71.02mm (2.794~2.796 in)	71.10mm (2.799 in)
$C=\frac{X+r}{2}$		



If out of specification, rebore or replace the cylinder and piston (Replace in a set)

.Measure the diameter "P"of piston lower part with micrometer, ⓑis the measuring position ⓑis 4mm away from piston bottom(0.16 in)

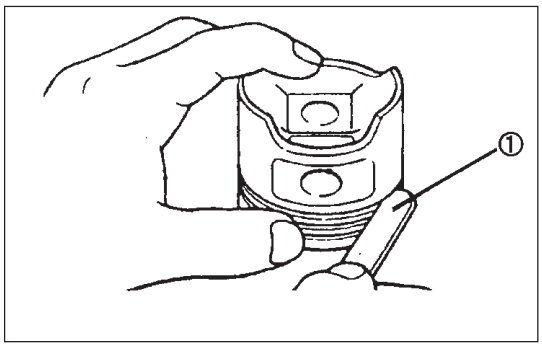
Pistor lower part diameter "P"	
Standard	70.92~70.97mm(2.792~2.794 in)

If out of specification. replace the piston and piston ring as a set at the same time.

.Calculate the mating cylinder clearance with the following formula

Mating cylinder clearance= "C"- "P"
Inner diameter of cylinder"C"
Pistion lower part diameter "P"

Mating cylinde clearance: 0.04~0.06mm (0.0016~0.0024 in) Limit: 0.15mm(0.0059 in)



.If out of specification, rebore or replace the cylinder, and replace the piston and piston ring as a set at the same time

15.Piston ring and piston pin

Piston ring

1)Measure

.Clearance between piston ring and ring groove

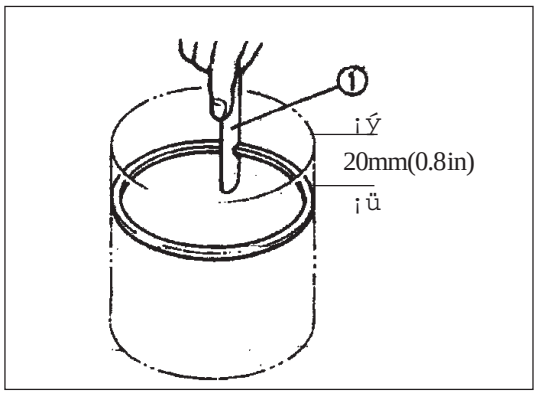
.Use feeler gauge ¢Ù

If out of specification, replace piston and a set of ring

Caution

First clean the carbon deposits inside the pistion ring and ring groove, followed by measuring the clearance between piston ring and ring groove.

Clearance between piston ring and ring groove		
	Standard	Limit
First ring	0.03-0.07mm (0.001-0.003 in)	0.12mm (0.005 in)
Second ring	0.02-0.06mm (0.008-0.024 in)	0.12mm (0.005 in)



2)Measurement

.Closed clearance of piston ring

.Install the piston ring to the cylinder,pull forward about 20mm(0.8 in),then pull the piston ring with piston top to make it vertical with cylinder wall.

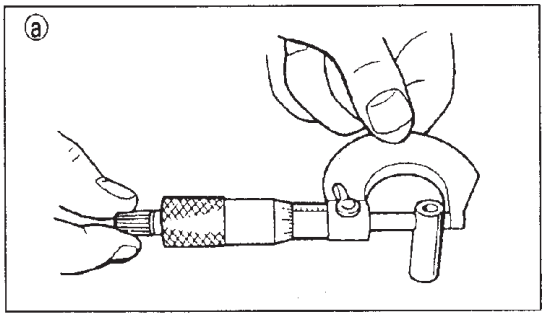
.Use feeler gauge ¢Ù

If out of specification replace a set of ring

	close deamance	
	Standard	Limit
Piston ring 1	0.15-0.30mm (0.006-0.012in)	0.4mm (0.016in)
Piston ring 2	0.15-0.30mm (0.006-0.012in)	0.4mm (0.016in)
Oil ring	0.2-0.7mm (0.008-0.028 in)	

Caution

You cannot measure the closed clearance of scraping place of oil ring assy,if the clearance of scraping plate is bigger,replace a set of oil ring



Piston pin

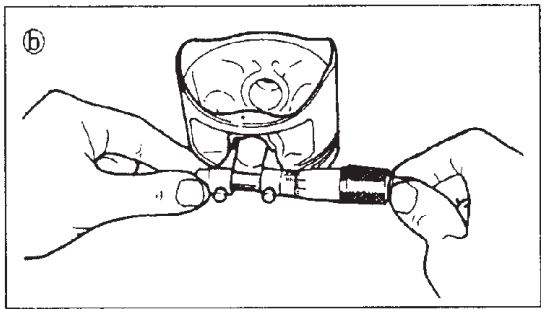
1)Inspection

.If the color is changed, or indent is found,replace piston pin, then inspect the Lubrication system.

2)Measurement:

.Outer diameter @ (Piston pin)

Out of specification,replace it



Outer diameter(piston pin):15.991-16.00mm (0.6296-0.6299 in)

3)Measurement:

.Inner diameter ⓑ of piston pin

Out of specification,replace it

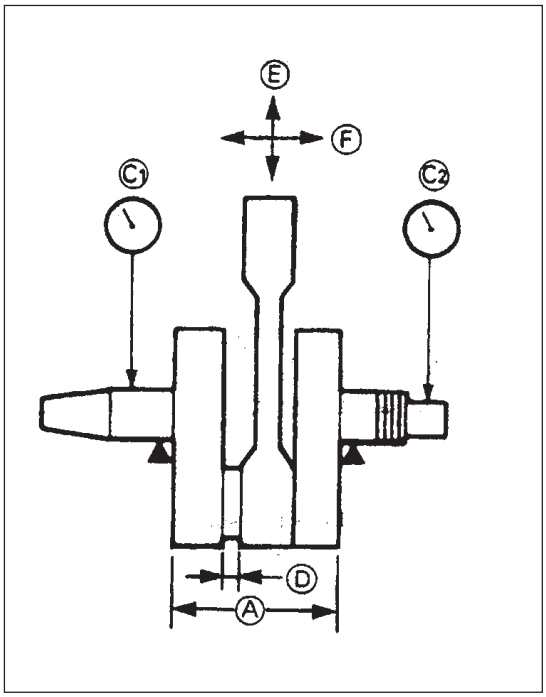
Inner diameter of piston pin hole 16.002-16.013mm (0.63-0.6304 in)

4)Measurement

.Clearance between piston pin and piston pin hloe

Clearance between piston pin and piston pin hloe=ⓑ -@ Inner diameter of piston pin hole ⓑ Outer diameter of piston pin@

Clearance between piston pin and piston pin hole 0.002-0.022mm (0.0001-0.0009 in) Limit 0.07mm (0.003 in)



16.Crankshaft

1)Measurement

.Dimension A of crankshaft assy

If out of specification replace it or repair it

Dimension of crankshaft assy
55.95-56.00mm(2.203-2.205 in)

.Runout C

If out of specification replace it or repair it

Runout Limit
C1:0.03mm(0.0012 in)
C2:0.06mm(0.0024 in)

.Side clearance D of big head of connecting rod

If out of specification, replace it or repair it

Max side clearance
0.35mm-0.65mm(0.014-0.026 in)

.Runout E of big head of connecting rod

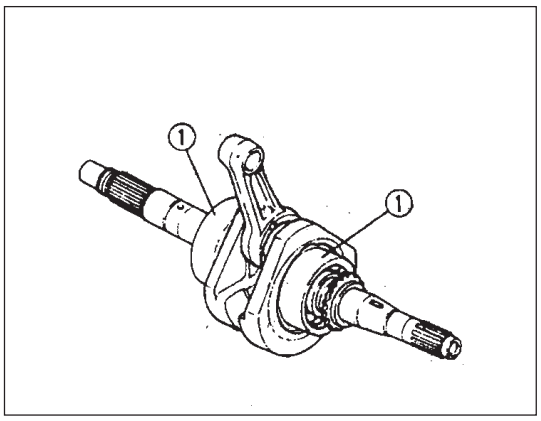
If out of specificaition, replace it or repair it

Runout amount of big head of connecting rod
0.010-0.025mm(0.0004-0.0010 in)

.Clearance F of small end

If out of specification, replace it or repair it

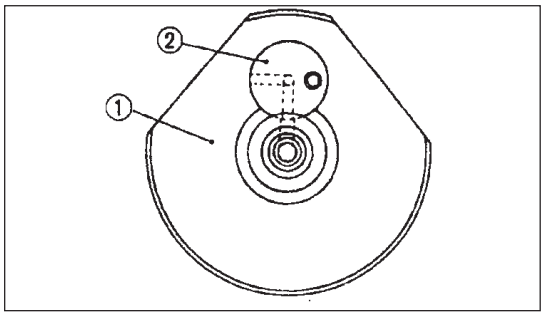
Clearance of small end:
0.8mm-1.0mm(0.032-0.040 in)
Limit: 2.0mm(0.08 in)

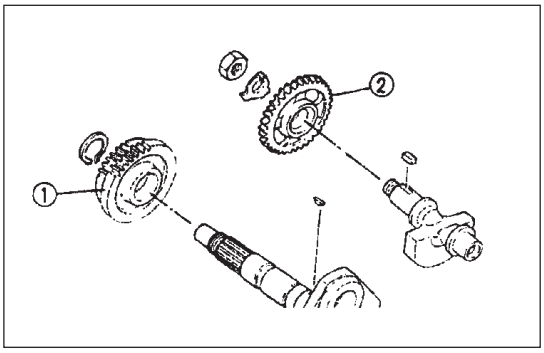


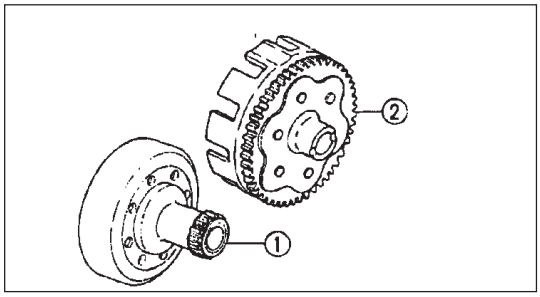
2)Inspection:

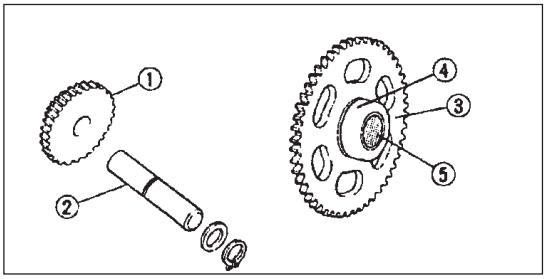
.Crankshaft bearing

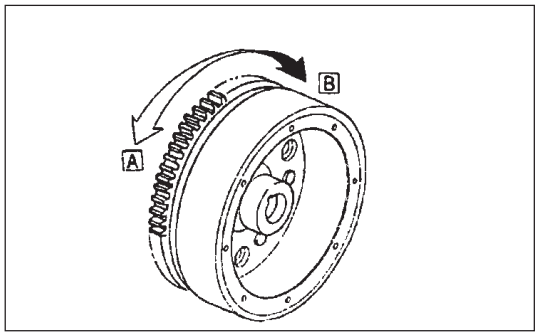
If there is some noise or not active in operation or overbig clearance, replace it.







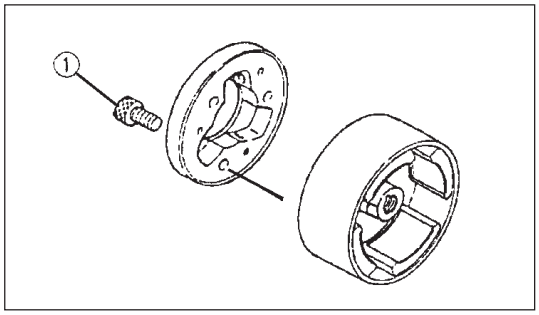




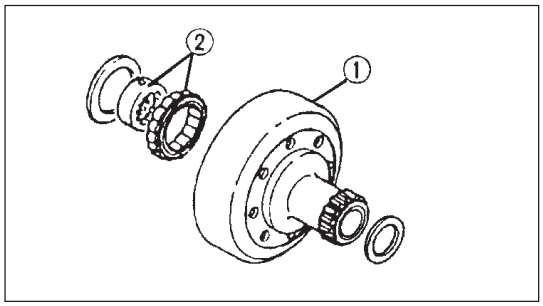
Main points of reassembly of crankshaft:
The oil traces on crankshaft ¢Ùand crank pin ¢Ú should be connected correctly, the malposition of two oil traces should be with in 1mm (0.04 in)

17.Driving gear of balance shaft and gear of balance shaft
Inspection:
.Driving gear of balance shaft ¢Ù
.Gear of balance shaft ¢Ú
If worn or damaged, replace two gears at the same time

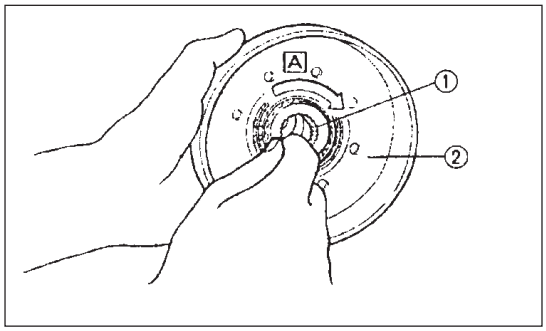
18.Primary gear and electric starting gear
1)Inspection
.Main driving gear ¢Ù
.Clutch gear assy ¢Ú
If scraped worn or damaged, replace it
If the noise is ovehigh during operation, replace two gears at the same time.
2)Inspection
.Duplex intermediate gear ¢Ù
Intermediate gear axle ¢Ú
If scraped, worn , or damaged, replace it
.Electric staring gear assy ¢Û
.Contact surface of overrunning clutch ¢Ü
.Bimetallic bushing¢Ý
If scraped, worn or damaged, replace duplex intermidiate gear, intermidiate gear axle, electric staring gear assy as a set.
3)Inspection of overrunning:
.Install the electric starting big gear to the running clutch and fascten the running clutch
.Turn the starting big gear counterclockwise in direction A as shown on the drawing, the starting big gear wil drive the overrunning clutch, if not, it indicatas the running clutch is out of operation, replace it.
.Turn the electric starting big gear clockwise in direction B as shown or the drawing, the starting big gear will run in idle speed if not, it indicates that the overrunning clutch is out of operation, replace it.

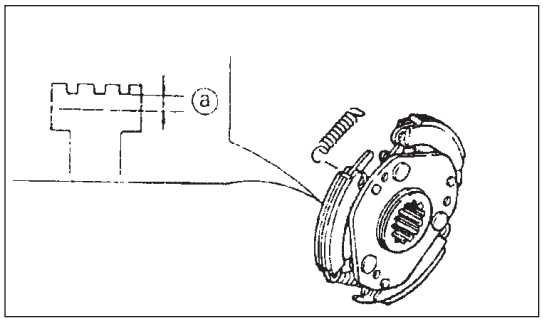


.Inspection
.Bolt¢Ù(overrunning clutch)
Loosen ¡úreplace with new one and apply fastening agent
Caution:
Fastening torgue of bolt (overrunning clutch) is 30Nm(3.0m.kg 22ya.pound).
Apply the fastening agent on the bolt



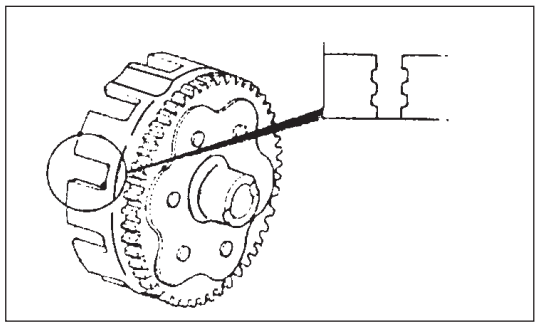
19.Main clutch
Clutch case
1)Inspection:
.Clutch case assy ¢Ù(inner surface)
Ablation,wear or darmage,replace it
.Single direction¢Ú(inside the clutch case assy)
If scraped,worn or damaged,replace it.
2)Inspection the operation of single direction clutch
Make sure that the inner spline cover ¢Ùcan only rotate clockwise in direction A,if the inner spline cover functions unsmoothly or rotates.
Counterclockwise,replace the inner spline cover
¢Ùand main clutch case assy ¢Úat the same time



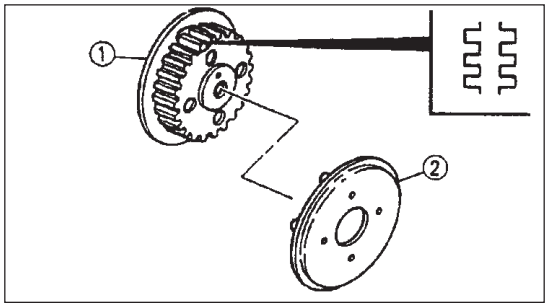


Main clutch shoe
1)Inspection
.Clutch shoe
If ablation is found,replace it.

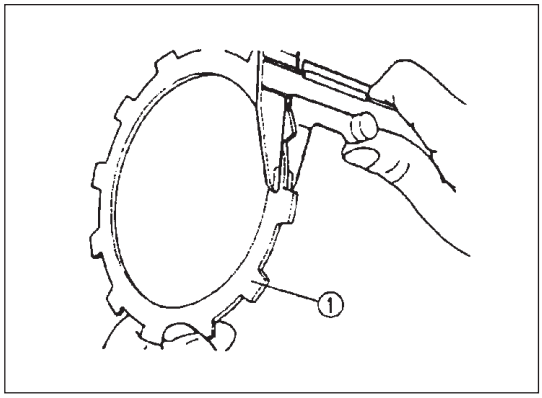
Wear limit of main clutch shoe:@
1.5mm(0.06in)



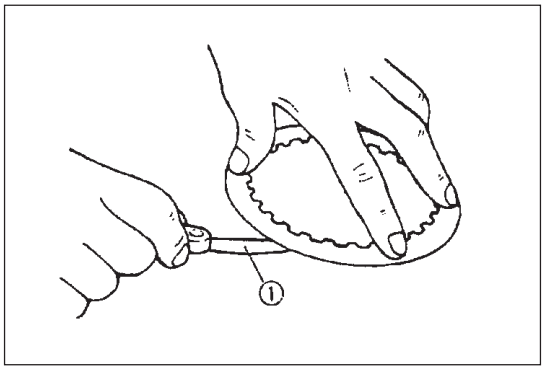
2)Measurement
.Thickness of main clutch shoe
If out of specification,replace.
20.Vice clutch
Clutch case
Inspection
.Split groove of clutch case
If there is pressing mark,worn or damaged on the groove face,remove the burr,or replace it.



Clutch hub assy and pressing plate
Inspection
.Tooth groove on the clutch hub ¢Ù
.Tooth groove on the pressing plate ¢Ú
If there is scraped,worn or damaged,replace the clutch hub or pressing plate.

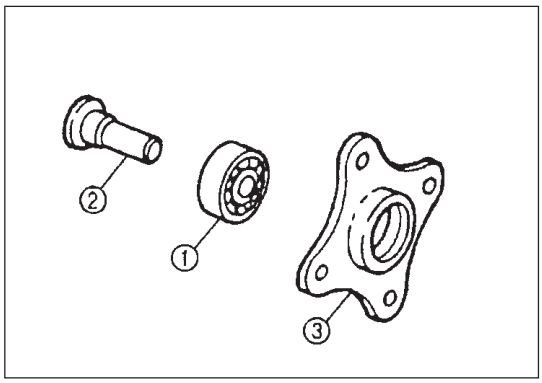


Friction plate
1)Inspection
.Friction plate ¢Ù
If damaged ,worn replace a set of friction plate
2)Measurement:
.Friction plate thickness
.Measure four positions
If out of specification,replace a set of friction plate

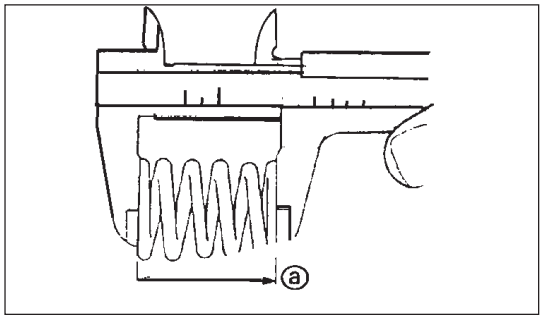


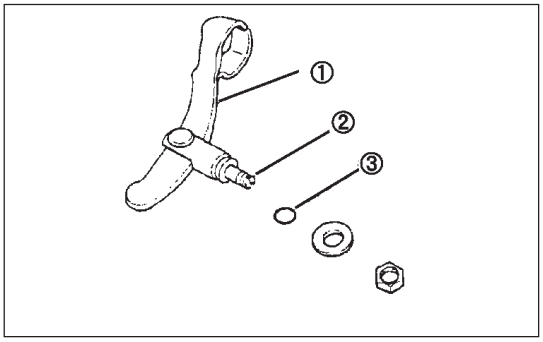
Wear Limit:
2.8mm(0.110 in)
Clutch plate
Measurement:
.Planeness of clutch plate
Use flat plate and feeler gauge ¢Ù
If out of specification,replace it.

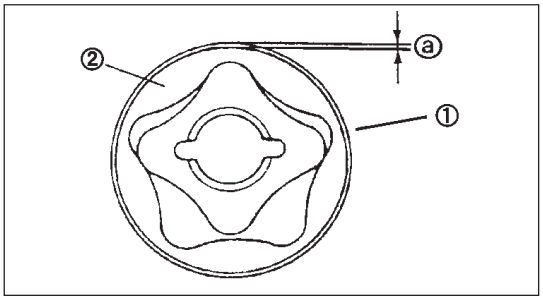
Planeness Limit:
0.2mm(0.008 in)

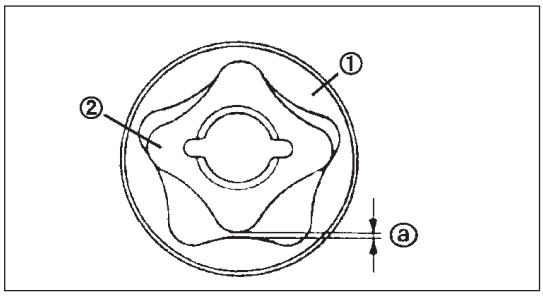


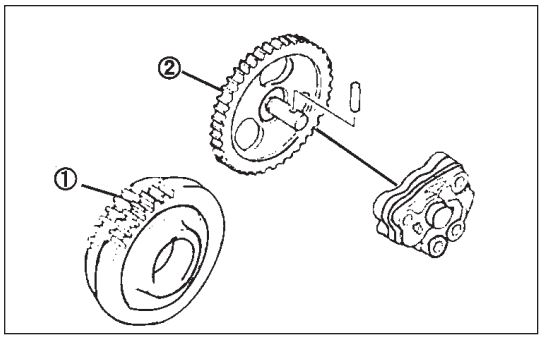
Clutch post rod and earing
Inspection:
.Bearing ¢Ù(Post rod)
If rough in surface or jammed in rotation,replace it
.Clutch post rod ¢Ú
.Pressing cover ¢Û
If worn,damaged,replace it.











Clutch spring

1)Inspection

.Clutch spling

If worn damaged,replace it

2)Measurement

.Free length of clutch spring@

If not of specification replace a set of spring

Min Limit of clutch spring length

32.9mm(1.30 in)

Clutch operartion rocker assy

Inspection

.Operation rocker assy ¢Ù

.Adjusting screw ¢Ú

.O-ring ¢Û

If cracks,wear or damage replace it

21.Oil pump

1)Measurement

.Clearance @ between oil pump and out rotor ¢Úwith feeler gauge

If out of specification,replace oil pump

Clearance Limit

0.09mm(0.004 in)

2)Measurement

.Side clearance between outer rotor¢Ùand inner rotor ¢Ú

If out of specification,replace oil pump

Side clearance limit

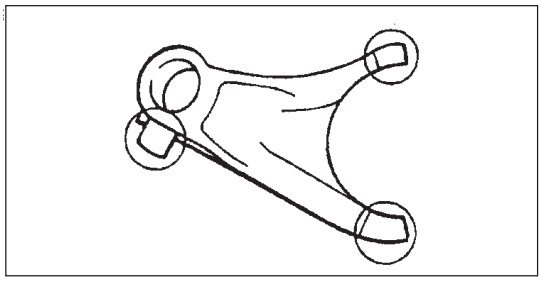
0.2mm(0.008 in)

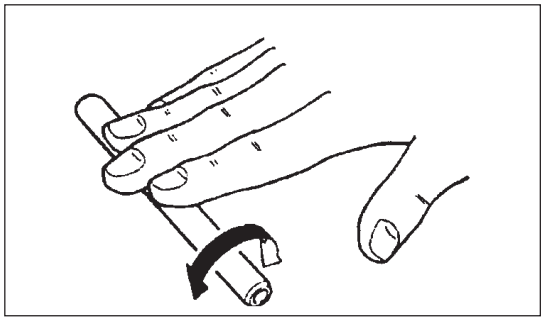
3)Inspection

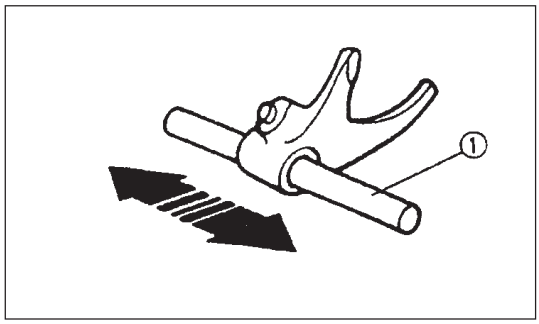
.Gear of driving oil pump on driving gear of balance shaft

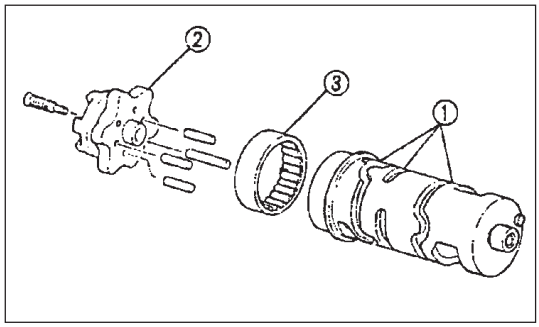
.Oil pump gear assy ¢Ú

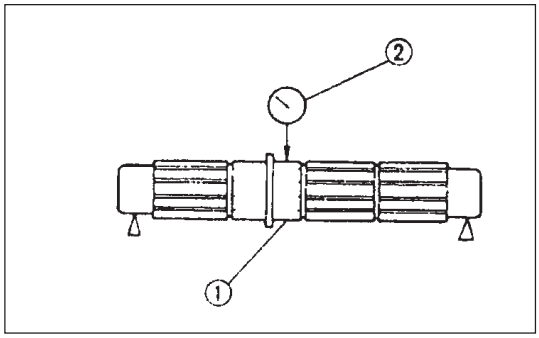
If worn scraped damaged,replace it











22.Shift fork and fork shaft

1)Inspection

.Fork

Connection surface to gear and shift cam

If worn,scraped,bent or damaged,replace it.

2)Inspection

.Fork shaft

(Roll the fork shaft on a plane)

If bent replace it.

Warning

Never attempt to straight a bent fork shaft

3)Inspection .Movement of fork on the fork shaft ¢Ù

If not smooth in operation,replace fork or fork shaft

23.Shift cam

Inspection

.Groove of shift cam ¢Ù

If worn,damaged,scraped,replace it.

.Start wheel ¢Ú

If damaged or worn,replace it

.Needle bearing ¢Û

If rough in surface or not active in operation, replace it.

24.Main/vice shaft and gtar

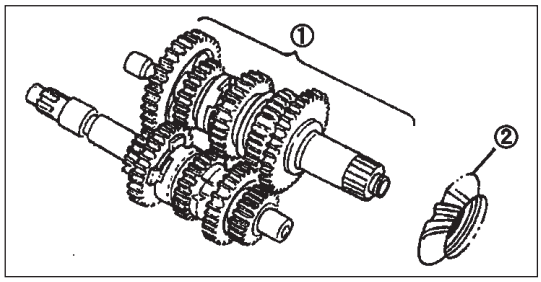
1)Measurement

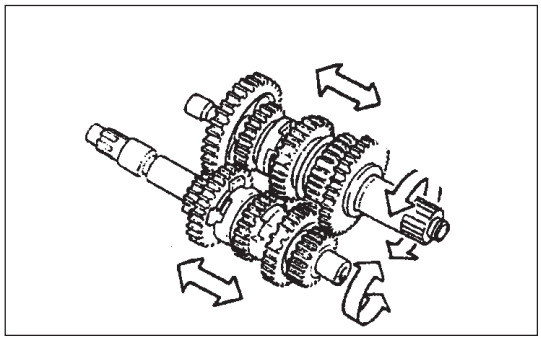
.Runout of shaft ¢Ù(Main/vice shaft)

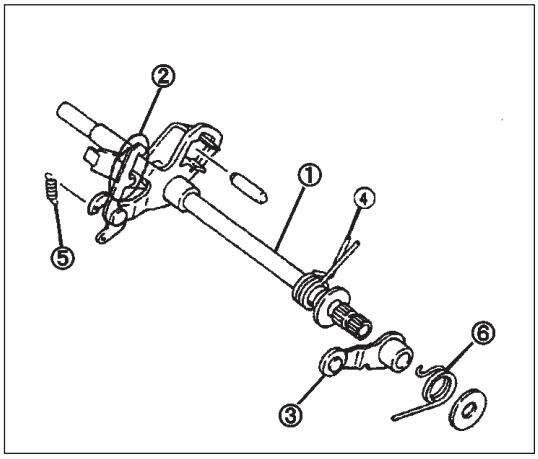
Measure with bracket and runout meter

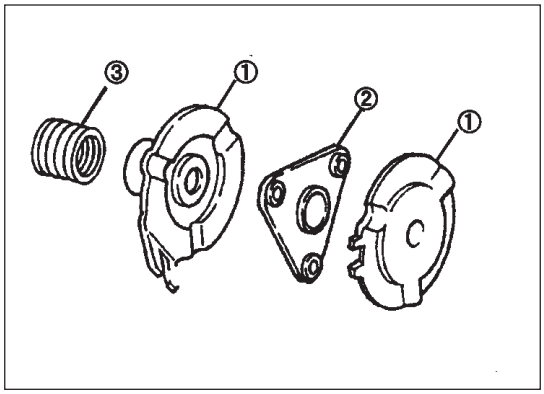
If out of specification,replace it.

Runout Limit
0.08mm(0.0031 in)









2)Inspection

.Gear (refer to shift mechanism and output gear ¢Ú)

.Engaging jaw position

If cracks ,damage,wear,replace it.

Caution

When replacing the output gear,be sure to adjust the adjusting washer of output gear

3)Inspection

.Movement of gear(shift mechanism)

If not smooth in operation,replace it.

25.Shift shaft and limit lever

1)Inspection

.Shift shaft ¢Ù

.Hook plate ¢Ú

If bent,worn,damaged,replace it.

2)Inspection:

.Limit lever ¢Û

If not smooth in operation,replace it

.If bent or damaged,replace it.

3)Inspection

.Shift torsion spring¢Ü(on the shift shaft)

.Tension spring¢Ý(Hook plate)

.Limit torsion spring¢Þ(On Limit lever)

If worn,damaged,replace it.

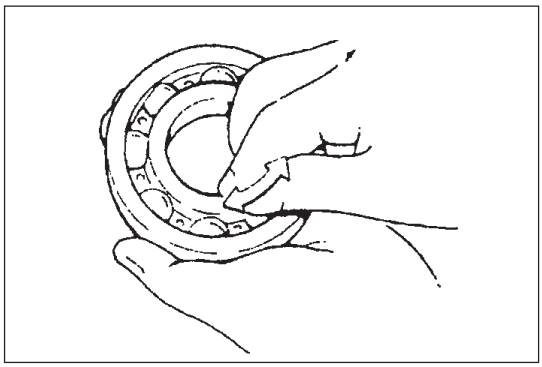
26.Disengaging mechanism of clutch Inspection

.Upper and lower camplates ¢Ù

.Steel ball stand/steel ball¢Ú

.Compressing spring¢Û

If worn,scraped,damaged,replace it



2.Bearing and oil seal

1)Inspection

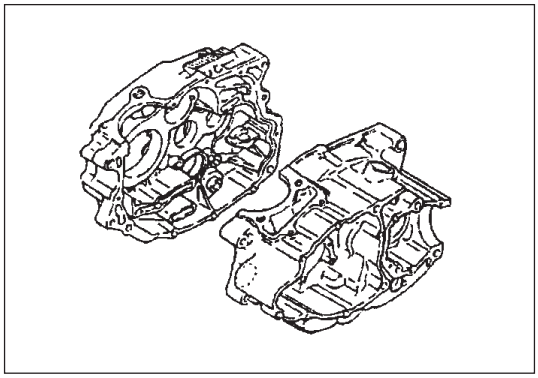
.Bearing

If jammed in operation or there are pits and dammagd,replace it.

2)Inspection

.Oil seal

If damaged or worn replace it.



28.Circlip and washer

Inspection:

.Circlip

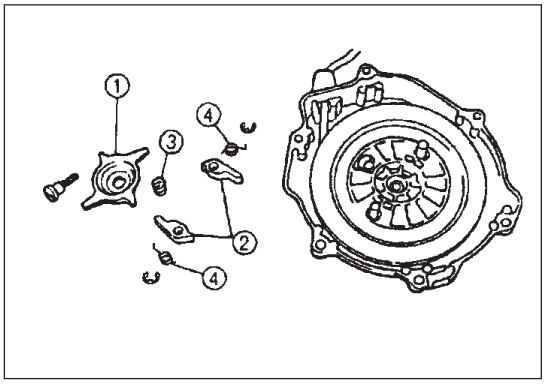
.Washer

If damaged loose,bent replace it.

29.Crankcase

1)Clean crankcase with soft agent completely

2)Clean all sealing surfaces and closing surfaces completely



3)Inspection:

.Crankcase

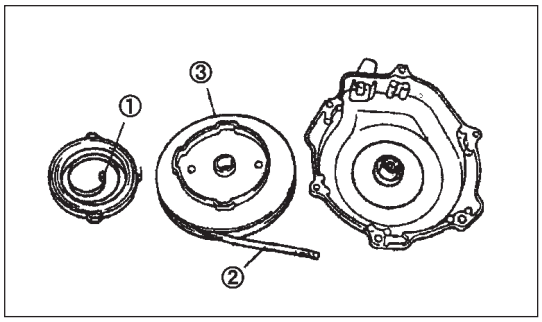
Cracks/damage,replace it.

.Oil trace

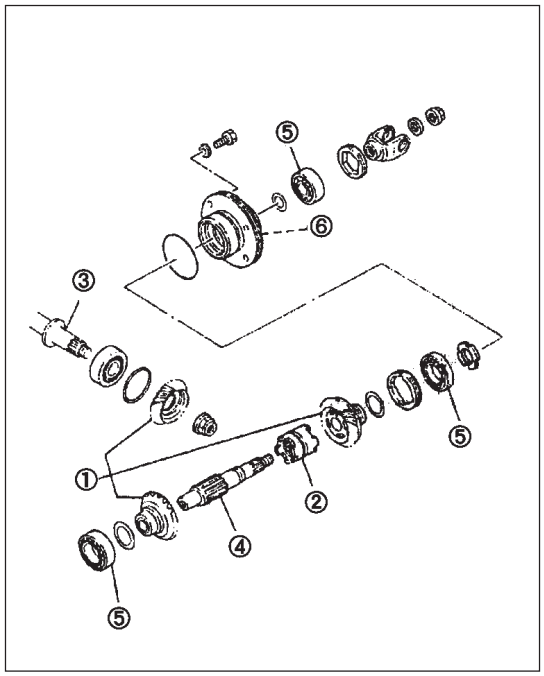
If jamed,blow with compressed air.

Caution

When replacing the crankcase be sure to readjust the output gear washer.



30.Hand operated mechanism
1)Inspection
.Inspection ¢Ù
If cracks beat,damaged,replace it.
.Driving jaw¢Ú
.Compressing spring¢Û
.Torsion spring¢Ü(Driving jaw position)
Wear/cracks/damage,replace it.

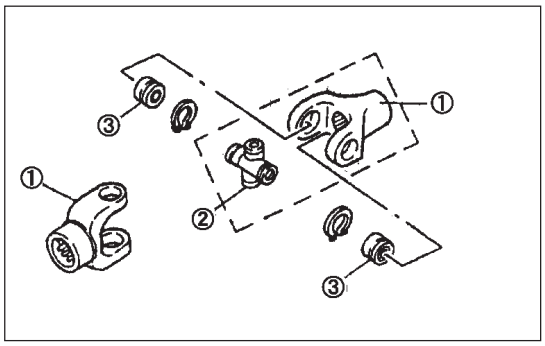


2)Inspection:
.Rolling spring¢Ù(Starting)
Wear/cracks/damage,replace it.
.Tension wire ¢Ú
Wear/cracks/damage,replace it.
.Driving plate assy ¢Û
Cracks/damage,replace it.

31.Output mechanism
1)Inspection
.All gears ¢Ù
If pressing mark/abrasion/wear is foud,replace it
.Connecting jaw ¢Ú
If pressing mark/abrasion/wear is foud,replace it
.Driving shaft ¢Û
.Output shaft ¢Ü
If damaged or bent,replace it.

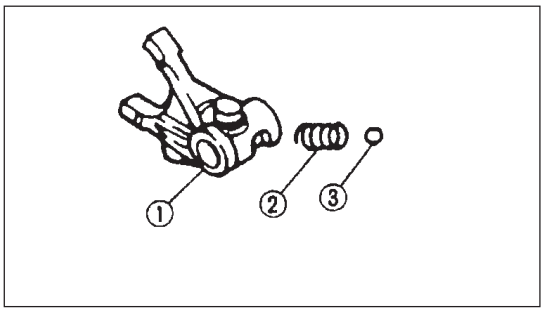
Caution

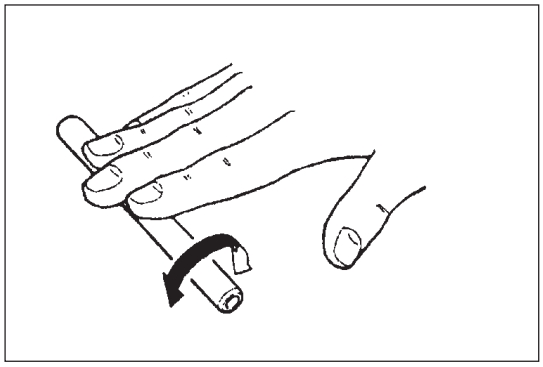
When replace arry gear or output shaft,be sure to readjust core gear washer,refer to ¡ ±Selection of adjusting washer¡ ±section.

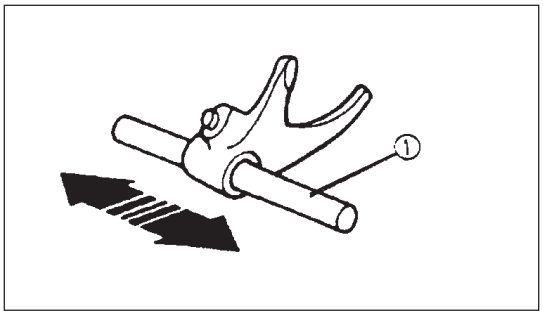


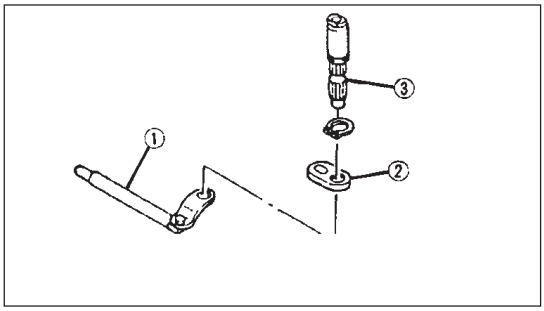
2)Inspection
.Bearing ¢Ý
If pressing mark or abrasion is found,replace it.

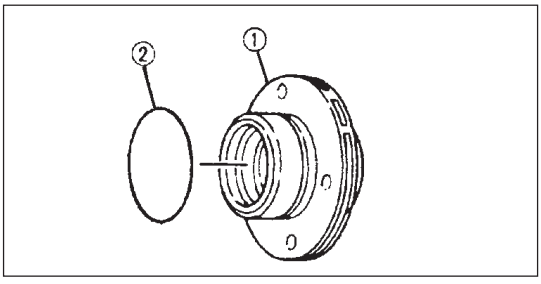
3)Inspection
.Front joint and rear join¢Ù
.Driving fork¢Ú
.Needle bearing ¢Û











4)Inspection

.Reverse fork ¢Ù

If wear/abrasion/bend/damage is found on the surface connecting with connecting jaw and reverse operating shaft,replace it.

.Compressing spring¢Ú

If the elasticity is lost,or worn replace it

.Steel ball ¢Û

If wear,damage,or scratch marks is found,replace it

5)Inspection:

Reverse fork shaft

Roll the reverse fork shaft on the flat surface, if bent,replace it.

Caution

Never straighten a bent shaft and reuse it

6)Inspection

.Flexibility of fork movement

Install the reverse fork ¢Ùto forkshaft,if not active or smooth in operation,replace fork and fork shaft.

7)Inspection

.Reverse control lever ¢Ù

.Operating plate ¢Ú

.Reverse operating shaft ¢Û

If bend,cracks or damage is found, replace it.

8)Inspection

.Rear cover ¢Ù

If cracks or damage on the position connecting with left crankcase,rear driving cover is found, replace the rear cover.

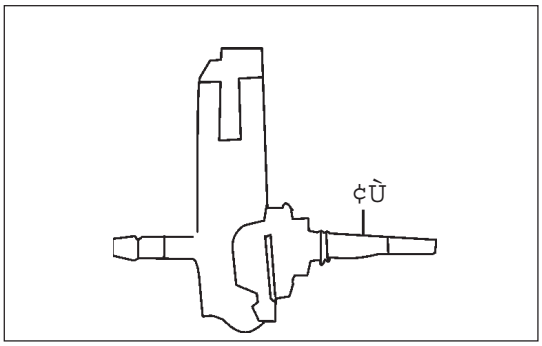
.O-ring ¢Ú

If damaged or deformed,replace it

Caution

When replacing the rear cover,be sure to readjust the gear core washer,refer to“Selection of Adjusting washer”sectsion.

Section 3 Assembly and adjustment of Engine



(I) Closing assembly of left & right crankcase

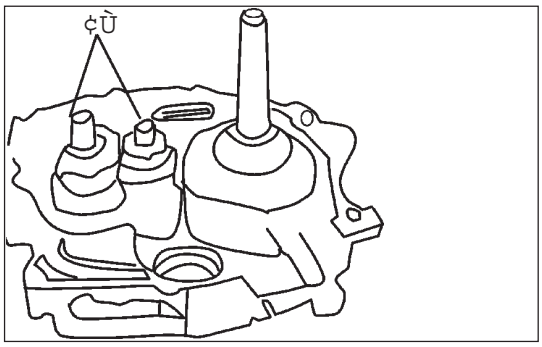
1.Installment

.Crankshaft ¢Ù

(Install to right crankscae)

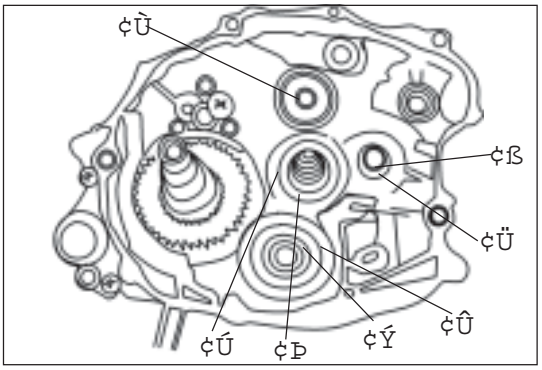
Caution:

When instlling the crankshaft, fasten the connecting rod to the installing hole of cyclinder with hand.



2.Installment

Spindle assy and driving shaft assy ¢Ù



3.Installment

.Balance shaft ¢Ù

.Fork 1 ¢Ú

.Fork 2 ¢Û

.Fork 3 ¢Ü

.Shift cam ¢Ý

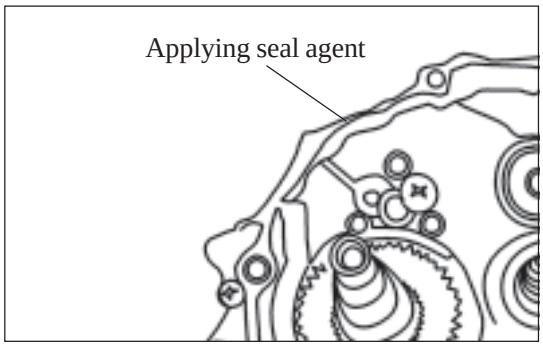
.Short fork shaft ¢Þ

.Long fork shaft ¢ß

Caution

.Lubricate each gear and bearing.

.Before closing, be sure to set the shift mechanism at neutral and active in operation.



(II) Assembly of right crankcase

4. Applying

¡¤Seal agent ¢Ù

Apply the seal agent on the closing surface of left crankcase.

Seal agent: Letai 518 anaerobic plane seal glue.

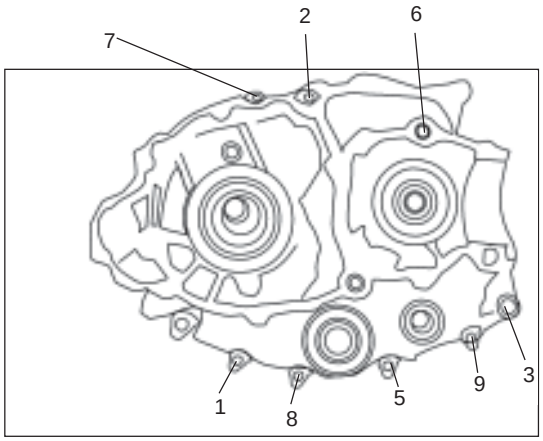
5. Installment:

¡¤Location pin ¢Ù

6. Install the left crankcase to the right cankcase. Beat with soft hammer slightly.

Caution

Before installing the clossing screw, be sure to rotate shaft at random direction so as to check if the function of shifting mechanism is normal.



7. Tighten up

Screw (crankcase)

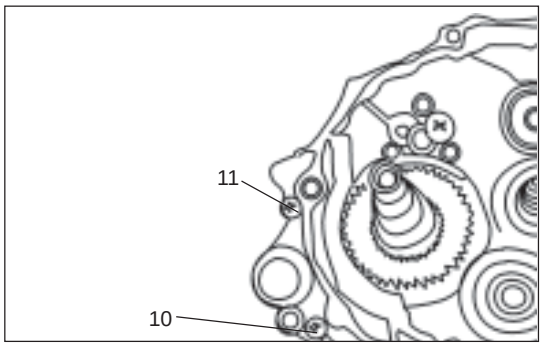
Caution

Tighten up the screw as the order shown on the drawing.

8. Appling oil

¡¤4-stroke engine oil

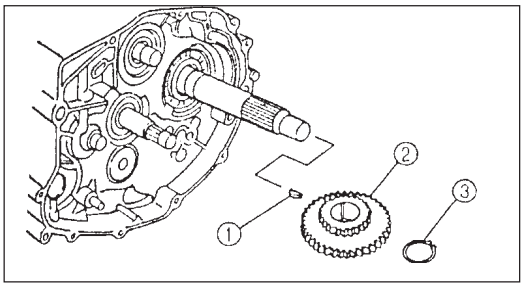
Applying to the bearing and oil hole



9. Inspection:

¡¤Operation of crankshaft and shift mechanism

Not active replace



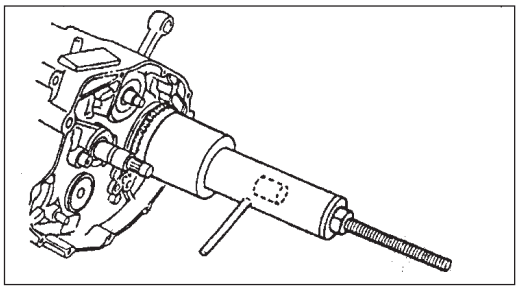
1. Balance shaft gear and driving gear

1) Installment

¡ ¤Woodruff key ¢Ù

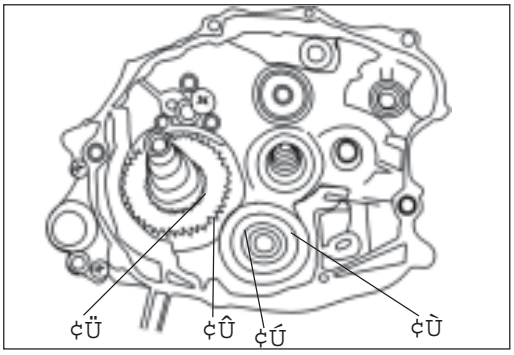
¡ ¤Driving gear of balance shaft ¢Ú

¡ ¤Circlip ¢Û



Caution

Use the gear puller.



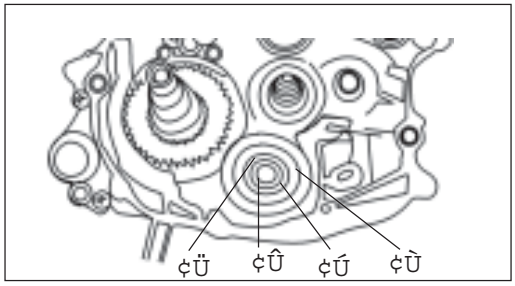
2) Installment:

¡ ¤Balance shaft gear ¢Ù(be driven)

¡ ¤Flat key ¢Ú

Caution

The mark ¢Ûof driving gear should align with the mark of ¢Üdriven gear.



3) Installment:

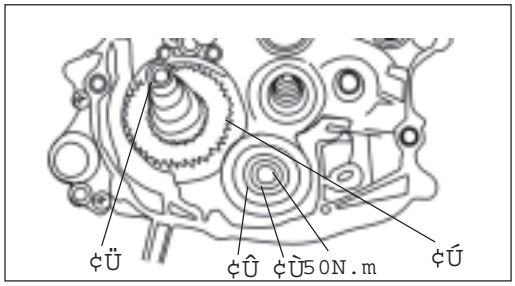
¡ ¤Locking washer ¢Ù

¡ ¤Nut ¢Ú(Dirven gear)

Caution

¡ ¤Be sure to use new locking washer.

¡ ¤Install the locking washer locating plate ¢Û inside the key groove of balance shaft ¢Ü



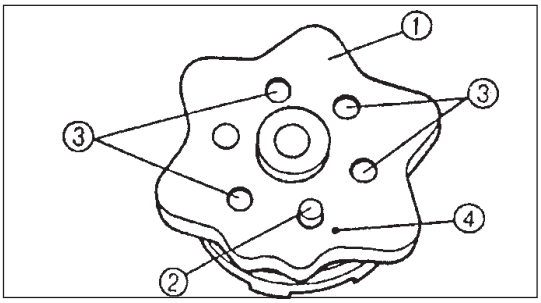
4) Tighten up:

¡ ¤Nut ¢Ù(Driven gear)

Caution

Place a fold cloth ¢Úbetween the balance shaft gear ¢Ûand the gear of driving gear ¢Üso as to avoid turning of shaft, then tighten up the nut.

5) Bend the locking plate of locking washer.



2. Shift shaft and oil pump

1)Installment:

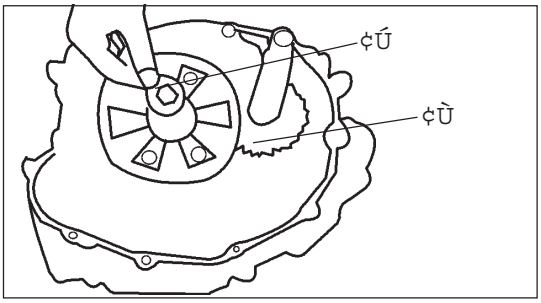
¡¤Star gear ¢Ù

¡¤Locating pin ¢Ú(long)

¡¤Shift pin ¢Û(short)

Caution

Install the location pin ¢Ú(long) to the filting mark ¢Ü position.

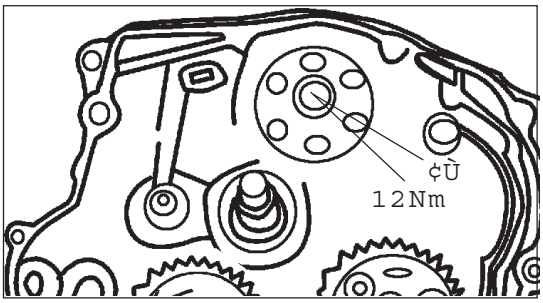


2) Installment:

¡¤Star gear (install to shift cam)

Caution

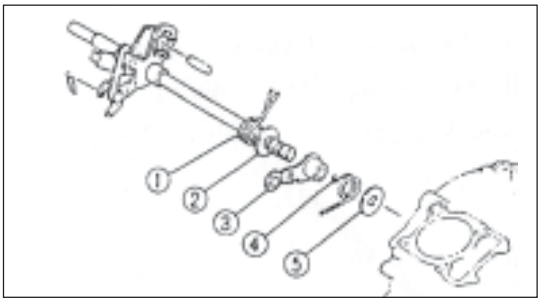
The hole of shift cam should be align with the location pin ¢Ú(long) of star gear.



3) Tighten up :

¡¤Screw ¢Ù(Star gear)

¡¤Apply the thread fastening agent on the screw ¢Ù.



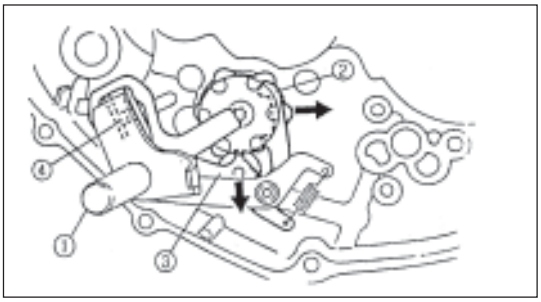
4) Installment

¡¤Shift torsion spring ¢Ù(install to shift shaft)

¡¤washer ¢Ú

¡¤Limit lever ¢Ûand limit torsion spring assy ¢Ü

¡¤washer ¢Ý



5) Installment

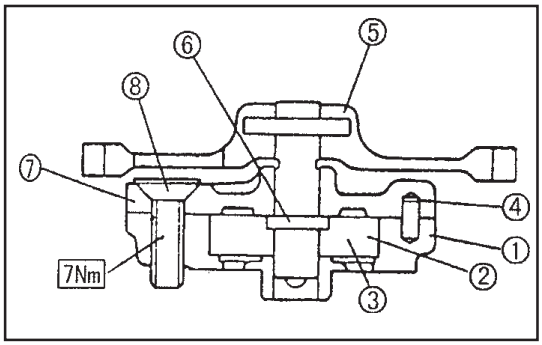
¡¤Shift shaft ¢Ù

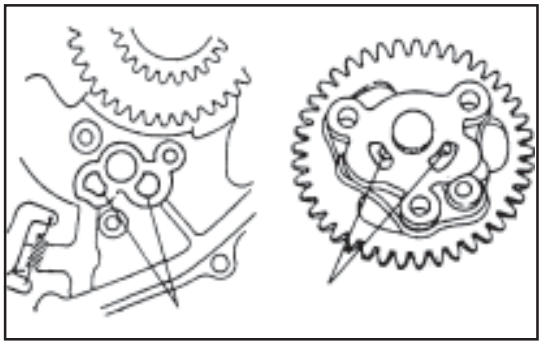
Caution

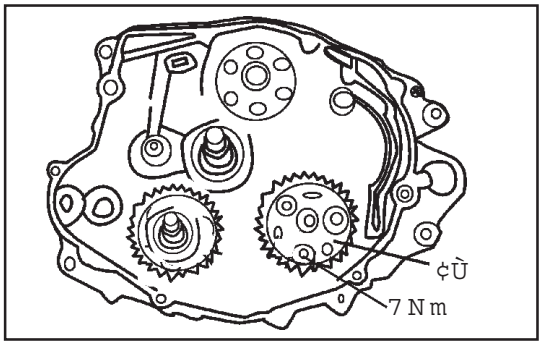
¡¤Before installing the shift shaft, apply the grease to the oil seal lip (left crankcase).

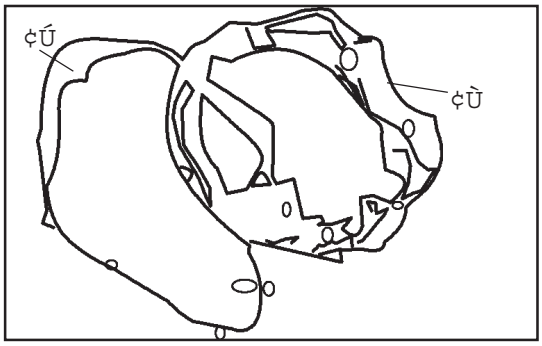
¡¤Pull the hook plate ¢Úin arrow direction and limit lever ¢Ûand press and install them to the star gear

¡¤Make sure that the torsion spring pin ¢Üin whithin spring hook ¢Ü









6) Applying engine oil
¡ ¤4-stroke engine oil
(Apply the parts inside the oil pump)
7)Installment:
¡ ¤Oil pump seat ¢Ù
¡ ¤Outer rotor ¢Ú
¡ ¤Inner rotor ¢Û
¡ ¤Locating pin ¢Ü
¡ ¤Oil pump gear assy ¢Ý
¡ ¤Driving pin ¢Þ
¡ ¤Oil pump cover ¢ß
¡ ¤Screw ¢à
Applying engine oil
¡ ¤4-stroke engine oil
(Apply to the lubrication oil trace of crankcase)

Apply lubrication oil Apply lubrication oil

Caution

The enough 4-stroke engine oil should be applied to lubrication oil trace of crankcase, otherwise the engine would be damaged.

9)Applying engine oil
¡ ¤4-stroke engine oil
(Applying on the lubrication oil trace of oil pump)
10)Installment
¡ ¤Oil pump pad
¡ ¤Oil pump (to crankcase)
¡ ¤Tighten up screw

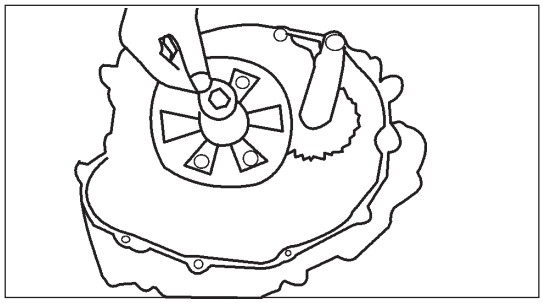
Caution

¡ ¤Be sure to use new pad
3. Right connecting case
1)Installment
¡ ¤Right connecting case gasket ¢Ù(new)
¡ ¤Locating pin ¢Ú
¡ ¤Right connecting case ¢Û

Caution

¡ ¤Be sure to use new gasket.

2) Tighten up
Screw (right connecting case).

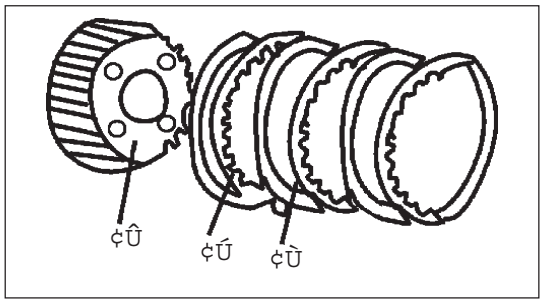


4. Main, vice clutch

1) Installment:

¡¤Clutch gear assy(secondary)

¡¤Spline washer ¢Ú



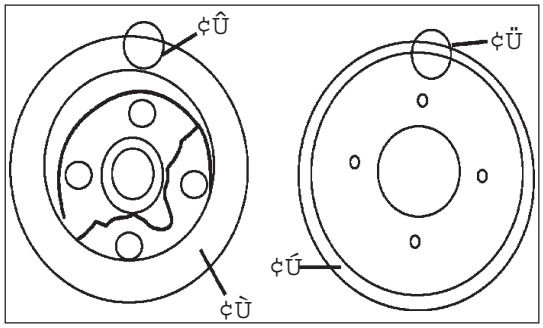
2) Installment:

¡¤Friction plate ¢Ù

¡¤Clutch plate ¢Ú(Install to clutch hub ¢Û)

Caution

Install the clutch plate and friction plate to the clutch hub alternately, from friction plate to friction plate.



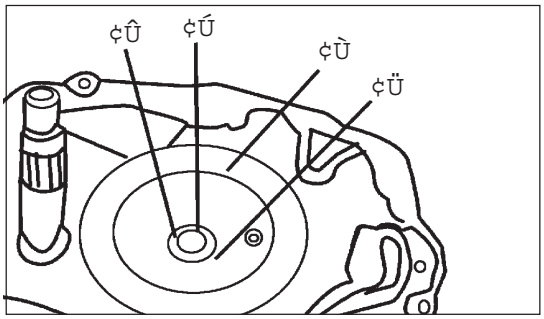
3) Installment:

¡¤Clutch hub ¢Ù

(Install to pressure plate ¢Ú)

Caution

The arrow mark ¢Ûof clutch hub should align with the arrow mark ¢Üon the pressure plate.



4) Installment:

¡¤Clutch hub, pressure plate, clutch plate and friction plate assy ¢Ù(to main shaft ¢Ú)

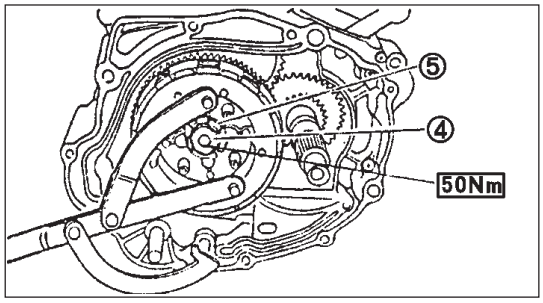
¡¤Locking washer ¢Û

¡¤Nut ¢Ü(clutch hub)

Caution

Be sure to use new locking

¡¤Be sure to install the locking washer inside the indent of clutch hub.

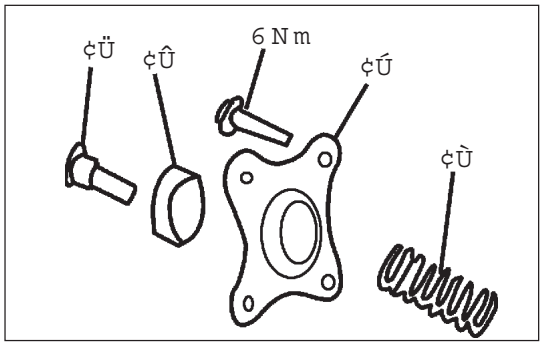


5) Tighten up:

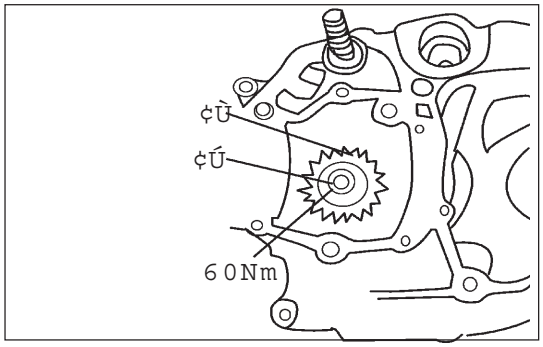
¡¤Nut ¢Ü(Clutch hub)

Caution

Fasten the clutch hub, then tighten up the



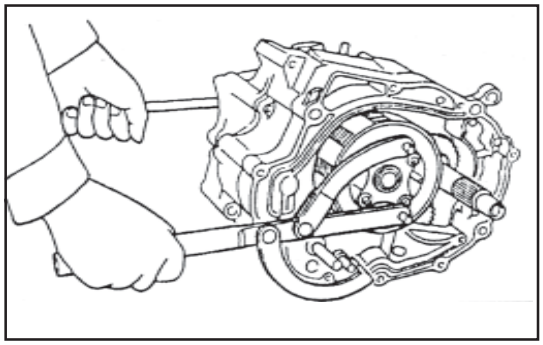
6) Bend the locking plate ¢Ýof locking washer.
7) Installment:
¡¤Clutch spring ¢Ù
¡¤Pressure cover ¢Ú
¡¤Bearing ¢Û
¡¤Clutch post rod ¢Ü



8) Installment:
¡¤Output gear ¢Ù
¡¤Nut ¢Ú

Caution

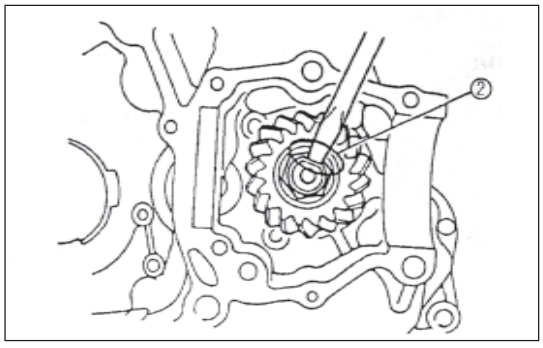
Be sure to use new nut.



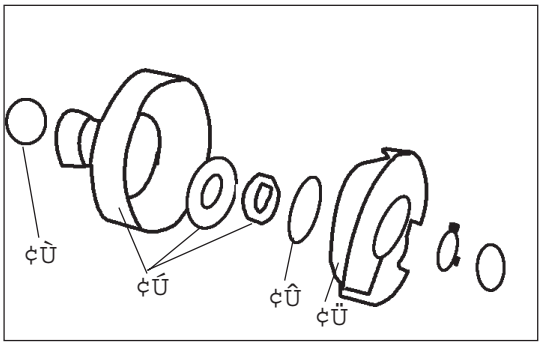
9) Tighten up
¡¤Nut ¢Ú

Caution

Fasten the clutch hub of vice clutch, and tighten up the nut.



10) Lock the nut ¢Úwith screwdriver.



11) Installment

¡¤Washer ¢Ù

¡¤Main clutch case assy ¢Ú

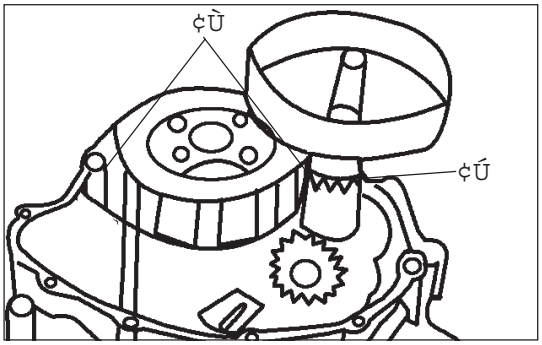
¡¤Washer ¢Û

¡¤Clutch shoe assy ¢Ü

Caution

¡¤There are two indents ¢Ùon the vice clutch case.

When installing the main clutch case, one of the indents should align with the main clutch gear ¢Ú



12) Installment:

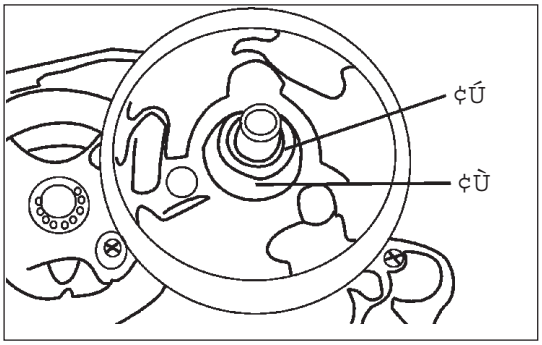
¡¤Locking washer ¢Ù

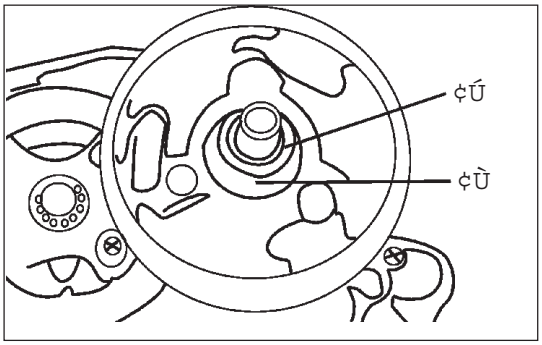
¡¤Nut ¢Ú(Main clutch)

Caution

¡¤Be sure to use new locking washer

¡¤The locating plate of locking washer should be installed in the indent of clutch shoe assy.





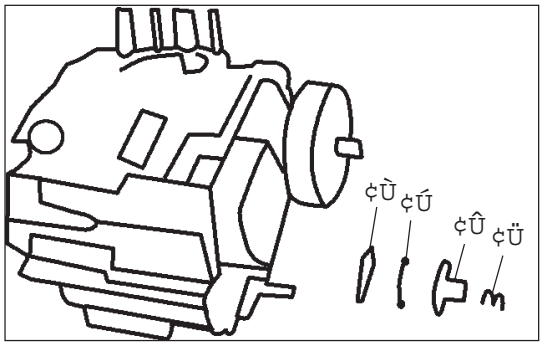
13)Tight up:

¡¤Nut ¢Ú(Main clutch)

Caution

Fasten the clutch shoe assy, then tighten up nut.

14)Bend the locking plate ¢Ûof locking washer.



5. Clutch disenagaing mechanism and right case cover

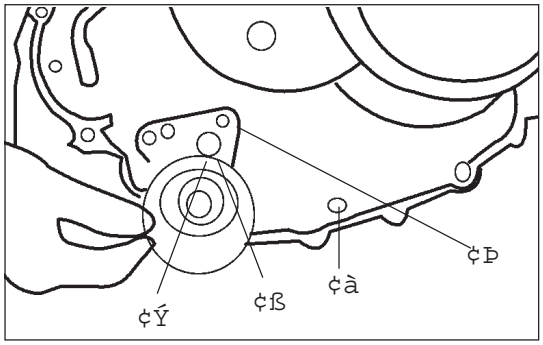
1)Installment:

¡¤Lower cam plate ¢Ù

¡¤Steel ball stand assy ¢Ú

¡¤Upper cam plate assy ¢Û

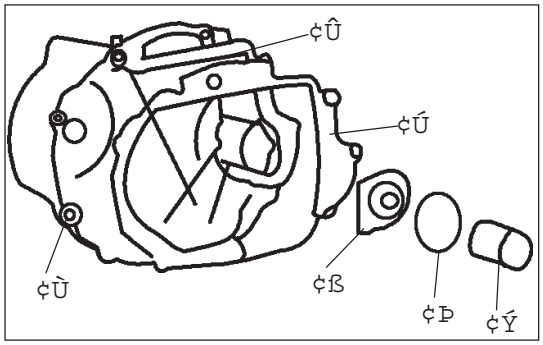
¡¤Compressing spring ¢Ü



Caution

¡¤The locating notch ¢Ýof lower cam plate should aling with convex block ¢Ëof shift shaft.

¡¤The locating notch ¢ß of upper cam plate should align with guide rod ¢à.

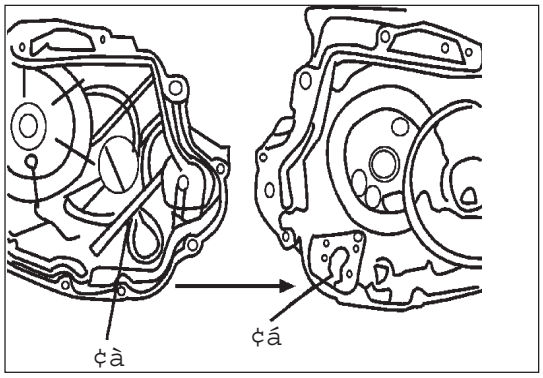


2) Installment:

¡¤Locating pin ¢Ù

¡¤Right crankcase gasket ¢Ú

¡¤Right crankcase gasket ¢Û



¡¤Oil fine filter ¢Ý

¡¤O-ring ¢Þ

¡¤Oil fine filter cover ¢ß

¡¤Clutch operating rocker assy ¢à

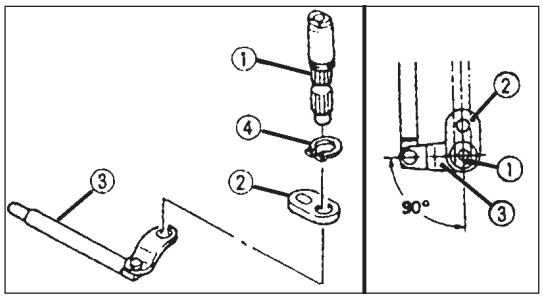
Caution

¡¤Be sure to use new gasket.

¡¤The hole of clutch operating rocker assy ¢à should align with shift shaft.

3) Tighten up

¡¤Screw(right crankshaft cover)



(III) Assembly of left crankcase

1. Reverse operation system

1) Mount:

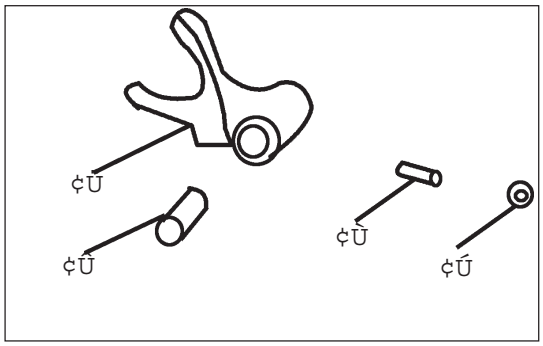
¡ ¤Reverse operation shaft ¢Ù

¡ ¤Operation plate ¢Ú

¡ ¤Reverse control lever ¢Û

¡ ¤Circlip ¢Ü

Mount the above on the rear driving cover.



2) Mount:

¡ ¤Compressing spring ¢Ù(on reverse gear fork ¢Ü)

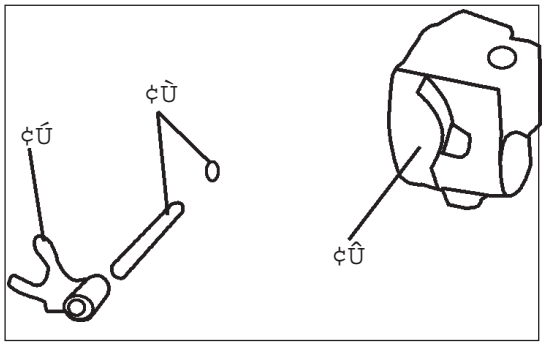
¡ ¤Steel ball ¢Ú

Caution

Mount a positioning set pin ¢Û into the fork first for fixing the steel ball and spring, that is easy to mount the fork pin into fork.

3) Lubrication

Apply lubrication oil(SAE20W/40) in the inner diameter of fork and pin.



4) Mount

¡ ¤Reverse gear fork shaft (With O-ring)

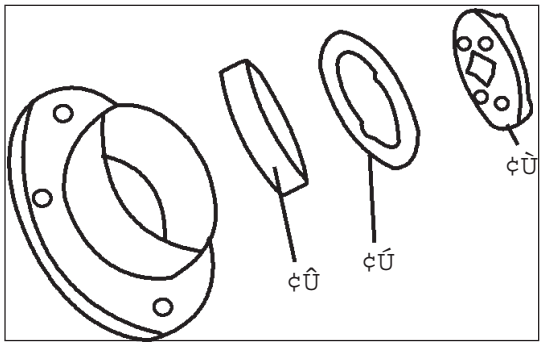
¡ ¤Mount the reverse gear fork pin ¢Ùinto the hole of rear driving cover ¢Û

¡ ¤Reverse gear fork ¢Ú

Caution

Mount the reverse fork shaft into the hole of the reverse fork and then pull out the locating pin and take it out.

¡ ¤Check if the fork is working.



2. Output shaft assy

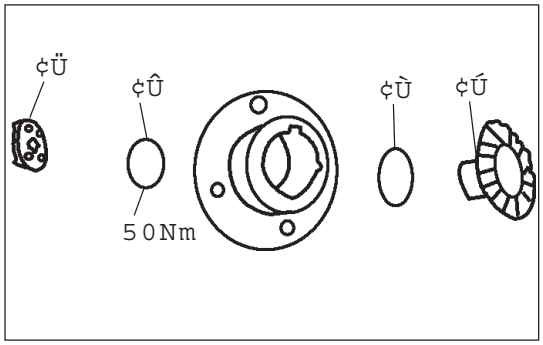
1) Mount

¡¤Bearing ¢Ù(to rear cover)

¡¤Nut collar ¢Ú

Caution

Use the nut collar spanner ¢Ûto tighten the collar.



3) Mount

Washer ¢Ù

¡¤Reverse gear ¢Ú

¡¤Compromise left-turning nut ¢Û

Caution

¡¤Fasten the compromise left-turning nut by counter clockwise direction, because it is left-turning thread.

¡¤Use special-shaped nut spanner ¢Ü

4) Fasten

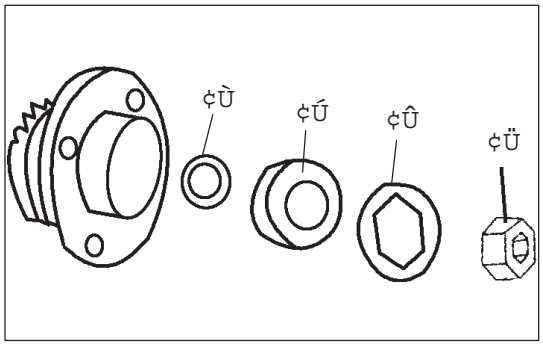
¡¤Special-shaped left-handed nut

5) Mount:

¡¤Washer ¢Ù

¡¤Bearing ¢Ú

¡¤Nut collar ¢Û



Caution

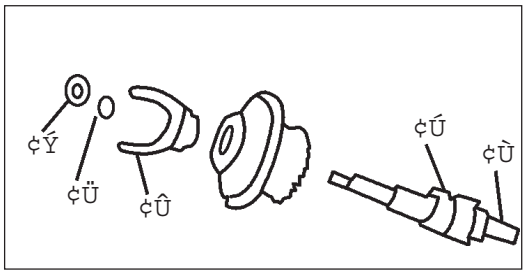
¡¤Use allen wrench ¢Ü

¡¤Coat ¡°518 anaerobic sealing gum ¡±or equal substitute on outer end surface of bearing ¢Ú which side is near to washer.

¡¤Coat thread fastening agent on allen nut collar ¢Û

6) Fasten

¡¤Allen nut colar



7) Mount:

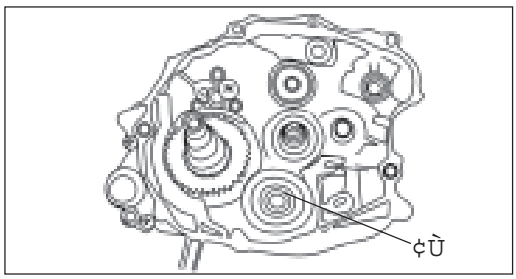
¡ ¤Output shaft ¢Ù

¡ ¤Connecting claw ¢Ú

¡ ¤Front splice ¢Û

¡ ¤Washer ¢Ü

¡ ¤Nut ¢Ý



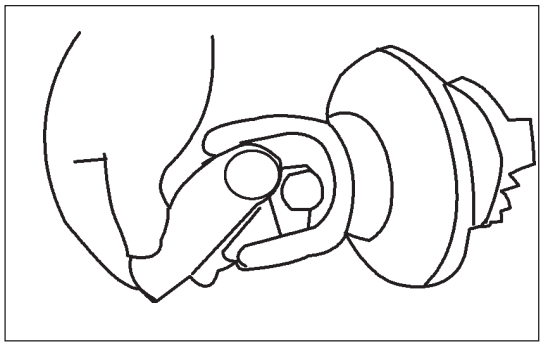
8)Fasten

¡ ¤Nut ¢Ý

Caution

¡ ¤Fix the front splice ¢Ûwith universal joint holder and conncet the locking nut ¢Ý.

¡ ¤Apply the thread fastening agent on the nut ¢ÝWhen mounting it.



9)Mount

¡ ¤Rear joint and driving fork.

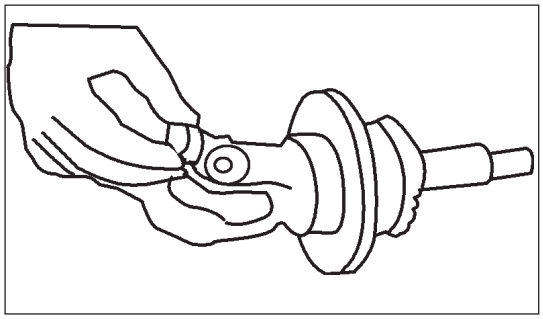
Mounting steps:

¡ ¤Mount the relative driving fork into the splice

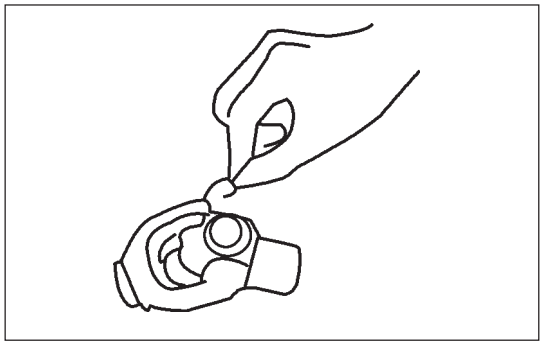
¡ ¤Coat grease on the needle bearing

¡ ¤Press every needle bearing ¢Ùinto the front splice with proper tube to ensure that the driving fork is inserted into the needle bearing hole.

¡ ¤Fix the hog ring ¢Úinto every bearing groove.

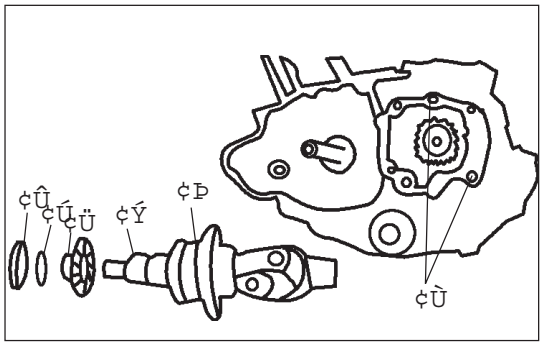


Caution



¡ ¤Check every needle bearing because the needle maybe drop out from bearing cone to lose. If it is like this the universal joint. Can' t be turned flexibly.

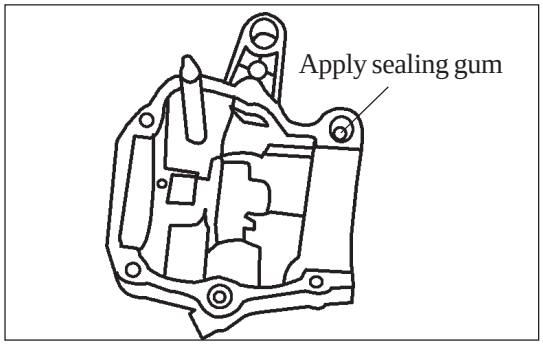
¡ ¤Insert the needle bearing into universal joint entirely to ensure the hog ring ¢Úcan be mounted.



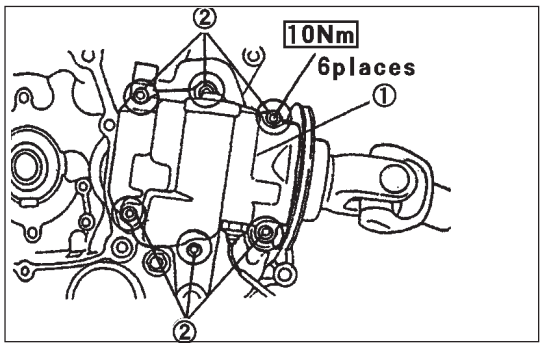
3. Mount:
¡¤Locating pin ¢Ù
¡¤Washer ¢Ú
¡¤Bearing ¢Û
¡¤Forward shift gear assy ¢Ü
¡¤Output shaft assy ¢Ý

Caution

Apply grease on O-ring ¢Þ



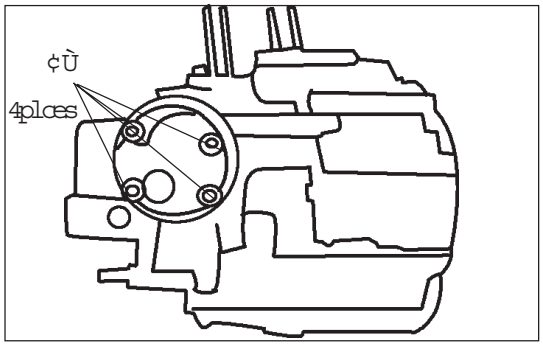
4. Coat
¡¤Sealing agent
(Coat on the matching surface of rear driving cover.)
¡¤Brand of sealing agent is 518 anaevobic sealing gum or equal substitute.



5. Mount:
¡¤Rear driving cover ¢Ù
¡¤Tighten bolt ¢Ú

Caution

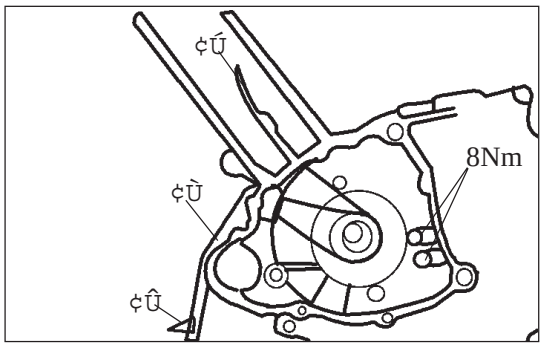
Before mounting the rear driving cover on the crank, make the gear on the forward shift position.



6. Tighten:
¡¤Bolt ¢Ù(rear cover)

Caution

When mounting rear cover to the crankcase, the arrow must be upward.
7. Electric starting system.



7. Electric starting system

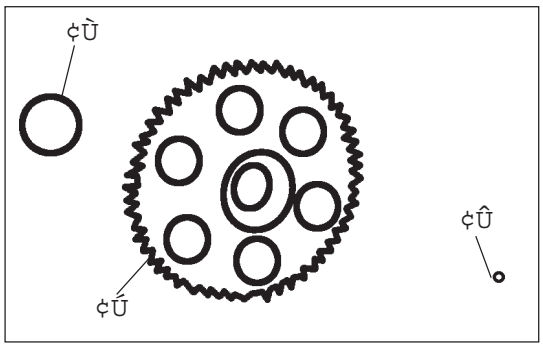
1)Mount

¡¤Timing chain ¢Ù

¡¤Up guide plate ¢Ú

Caution

Tight the shaft wire ¢Û of timing chain for avoiding it is dropped into the crankcase.



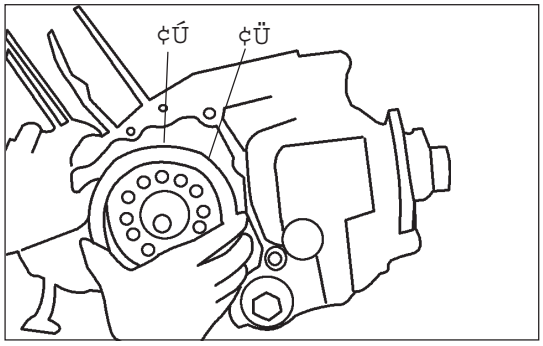
2) Mount

¡¤Washer ¢Ù

¡¤Electric starting gear assy ¢Ú

¡¤Woodruff key ¢Û

¡¤Magneto rotor ¢Ü

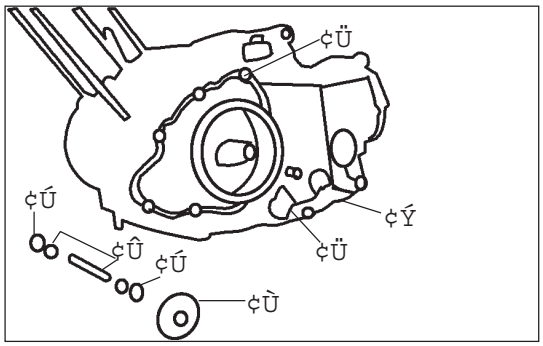


Caution

¡¤Clean the conical part of crank and magneto

¡¤When installing the magneto the key must be in to key groove of crank for avoiding it.

¡¤Mount the magneto ¢Üdrops out on the crank, and then fix the electric starting gear assy ¢Úturn the magneto by counterclockwise to make it into the electric starting big gear.



3) Mount:

¡¤Double wheel ¢Ù

¡¤Washer ¢Ú

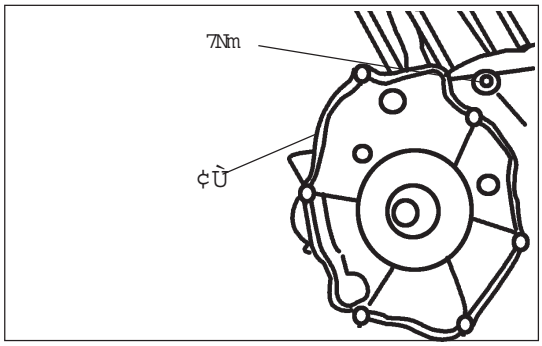
¡¤Wheel axle ¢Û

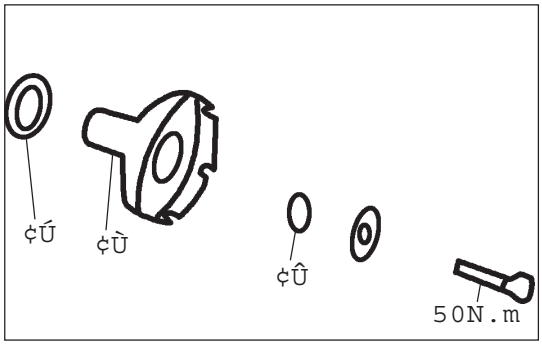
¡¤Locating pin ¢Ü

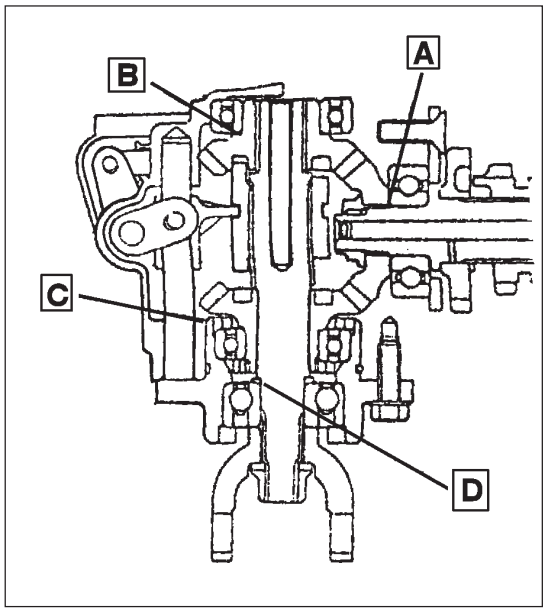
¡¤Sealing washer ¢Ýof left crankcase cover ¢Ý

Caution

Must use new washer







4) Mount:
¡¤Left crankcase cover ¢Ù
¡¤Fasten screw (8 pieces)

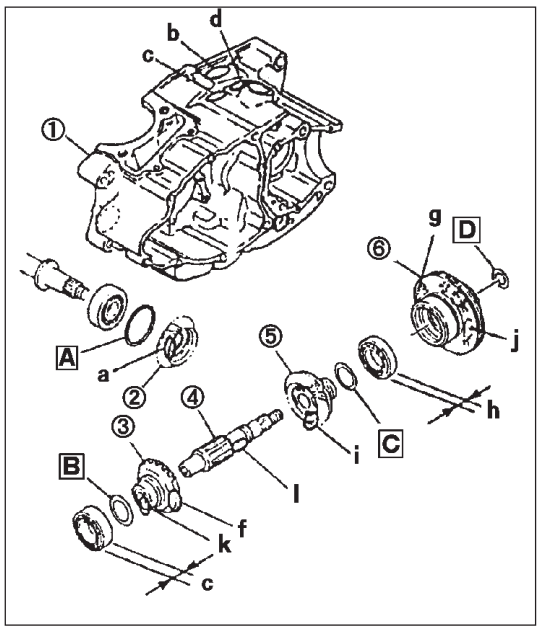
5) Mount:
¡¤Starting click pulley assy ¢Ù

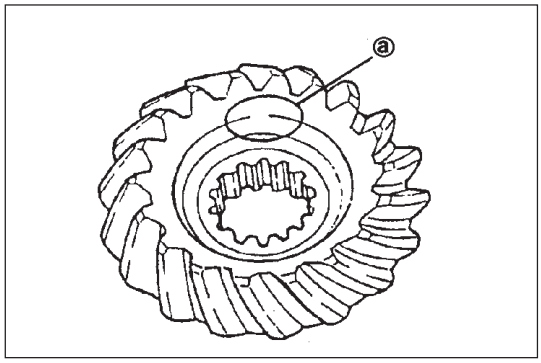
Caution

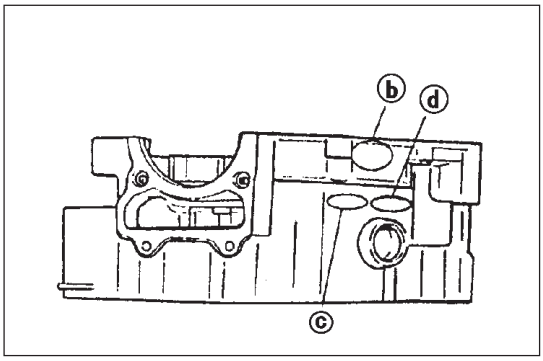
¡¤Fix the click pulley with rotor seat and tighten the bolt.
¡¤Before mounting the starting click pulley, apply grease on oil sealing ¢Úand O-ring ¢Û.

(¢Ò)Selection and installation of adjusting washer when mounting the crankcase.
When mounting the crankcase, output gear and output shaft, the applied washer thickness is determined by the actual machining dimention of the following parts. Adjust the correct breaking of the bevel gear and the clearance of every moving parts by washer thickness.
¡¤Crankcase
¡¤Output gear
¡¤Reverse gear
¡¤Rear cover
¡¤Forward gear
¡¤Output shaft
When replacing above parts, must select the adjusting washer again.

1. Mounting position of washer
A =Washer of output gear
B =Washer of forward gear
C =Washer of reverse gear
D =Washer of output shaft







A =a-b
B =d-c-e-f
C =d-g-h-i
D =j+c-e-B-k-1-0.25
¢ÙLeft crankcase
¢ÚOutput gear
¢ÛForward shift gear
¢ÜOutput shaft
¢ÝReverse gear
¢ÞRear cover

Changed parts	Washer needed to be adjusted
Crankcase	A B C D
Output gear	A
Forward gear	B D
Reverse gear	C D
Rear cover	C D
Output shaft	D

2. Choose washer A

¡¤When changing the crankcase or output gear, adjust output gear washer A

1) Calculate the washer thickness of output gear hy following formula¡°A¡±

Washer thickness of output gear:
A= ⓐ - ⓑ

ⓐ=Theory installing distance 42 of output gear adds the value engraved on the output gear.

ⓑ is the value engraved on crankcase.

Caution

All the unit about the value is mm.

2) For example:

If¡°+0.02¡±is engraved on the output gear.

that is : ⓐ=42+0.02=42.02

If¡°41.45¡±is engraved on the left crankcase

So the washer thickness is :

A=42.02-41.45=0.57mm

3) The following is prepared thickness of washer (mm):

	0.2	0.4
	0.3	0.5

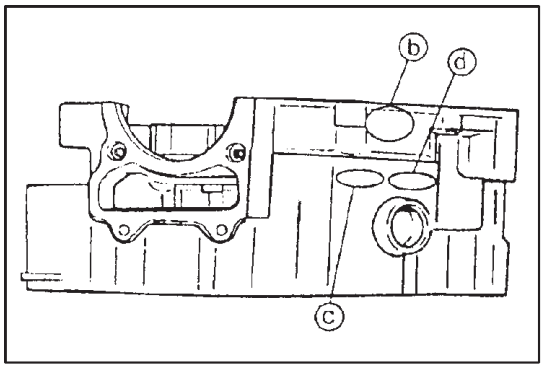
Washer selection table

range of A	Selected washer
0.5 ¡ÜA ¡Ü0.32	0.3
0.35 £¼A ¡Ü0.42	0.4
0.42 £¼A ¡Ü0.52	0.5
0.52 £¼A ¡Ü0.62	0.6
0.62 £¼A ¡Ü0.72	0.7
0.72 £¼A ¡Ü0.75	0.8

The washer thickness is 0.57mm, by calculation, the washer thickness should select 0.60mm according to above table.

3. Select washer B

When replacing left crankcase or forward gear, the forward gear washer B need to be adjusted.



1) Calculate the washer thickness of forward gear by following formula.

Washer thickness of forward gear:
B = ⓓ - ⓒ- ⓔ- ⓕ

ⓓ¡¢ⓒ is the value engraved on the left crankcase

ⓔ =(at the forward gear) bearing thickness (no change)
¡ °13.00mm ¡ ±

ⓕ= Theory installing distance¡ °37.5¡ ± of forward gear adds value engraved on forward gear.

For example:

If ¡ °d=110.08¡ ±is engraved on left crankcase¡ °c=59.02¡ ±

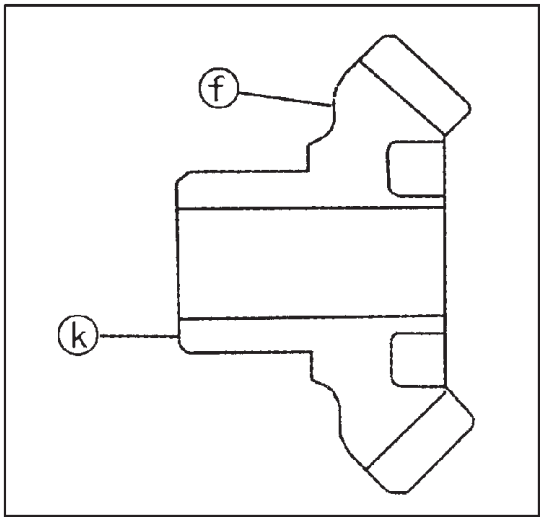
If ¡ °+0.02¡ ±is engraved on the forward gear,

ⓕ =37.5+0.02=37.52

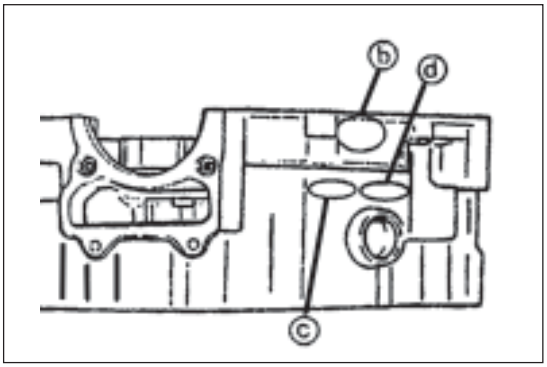
So the washer thickness is :

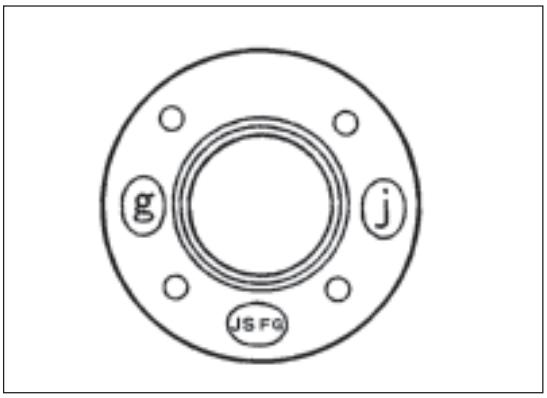
B=110.08-59.02-13.00-37.52=0.54mm

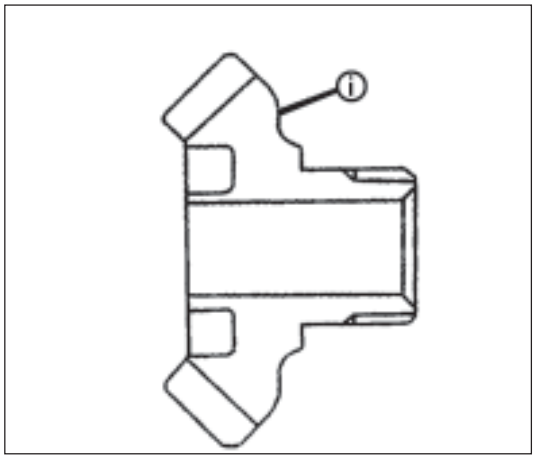
3)The following is the prepared washer thickness (mm)



0.2	0.4
0.3	0.5







Washer selection table

range of B	Selected washer
0.25 ¡ÜA ¡Ü0.28	0.2
0.28 £¼A ¡Ü0.38	0.3
0.38 £¼A ¡Ü0.48	0.4
0.48 £¼A ¡Ü0.58	0.5
0.58 £¼A ¡Ü0.68	0.6
0.68 £¼A ¡Ü0.75	0.7

The washer thickness is 0.54mm, by calculation, the washer thickness should select 0.50mm according to above table.

3. Select washer C

When replacing left crankcase reverse gear,and rear cover,reverse, gear washer C need to be adjusted.

1) Calculate the washer thickness of forward gear by following formula.

Washer thickness of reverse gear:

C = ⓒ- ⓖ- ⓗ- ⓘ

ⓒ is the value engraved on left crankcase

ⓖ is the value engraved on rear cover

ⓗ is the bearing thickness ¡ °12.00 ¡ ±at the reverse gear）

ⓘ means that the theory installing distance ¡ ®39 ¡ ¯of reverse gear adds value engraved on reverse gear.

2)For example

¡ © =58.98 ¡ ±is engroved on left crankcase

¡ ⓖ =7.49 ¡ ±is engraved on rear cover

If ¡ °- 0 . 0 2 ¡ ±is engraved on reverse gear, ⓘ =39+(-0.02)=38.98

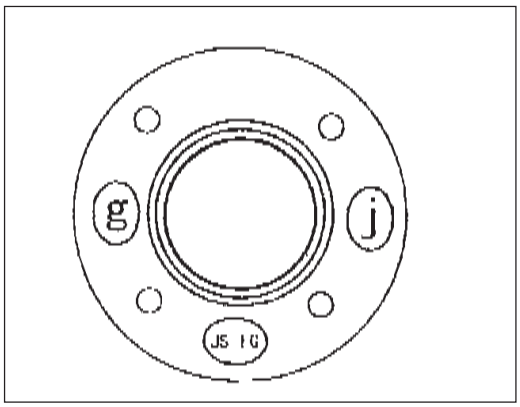
So washer C thickness is:

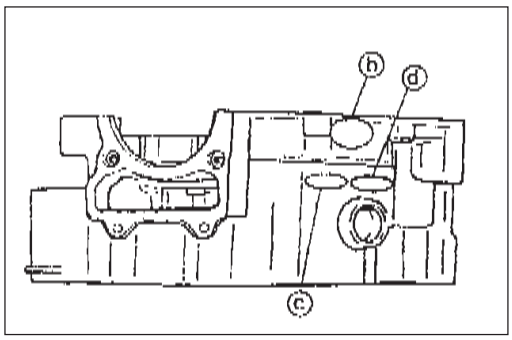
C=58.98-7.49-12.00-39.98=0.51mm

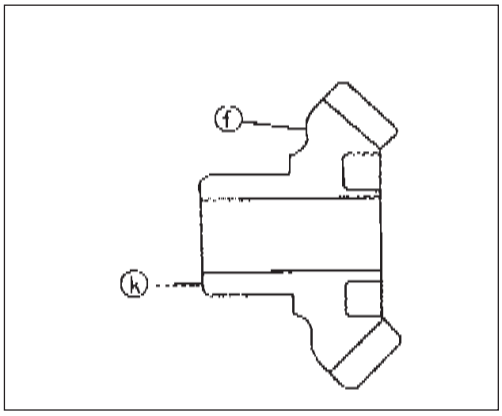
3) The following is the prepared thickness of washer(mm):

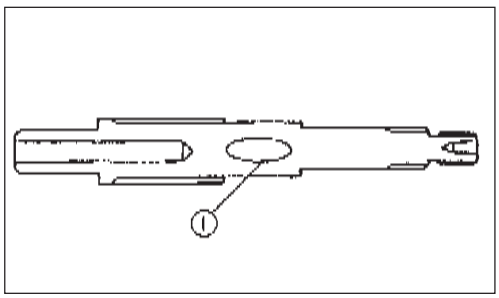
0.2	0.4
0.3	0.5

The way selected washer C is same with the way of washer B. The washer thickness is 0.51mm by calculation. So the washer thickness should select 0.50mm according to washer C selection way.









5. Select Washer D

When replacing left crankcase forward gear, reverse gear, rear cover and output shaft, washer D of output shaft needed to be adjusled.

1) Calculate the washer thickness of output shaft by following formula

Washer thickness of output gear:
D = ⓓ + ⓙ- ⓔ- B-k-1-0.25

ⓓis the value engraved on left crandcase

ⓙis the value engraved on rear cover

ⓔ is the bearing (at output gear) thickness ¡ °13.00 ¡ ±

¡ °k ¡ ±is the value engraved on forward gear

¡ °l ¡ ±is the value engraved on output shaft

2) For example:

¡ ¤If ¡ °0.97 ¡ ±is engraved on rear cover

¡ ¤°110.05 ¡ ±is engraved on left crankcase

¡ ¤°14.4 ¡ ±is engraved on forward gear

¡ ¤°80.45 ¡ ±is engraved on output shaft

¡ ¤So the washer thickness is:

D =110.05-0.97-13.00-0.50-14.4-80.45-0.25=2.42mm

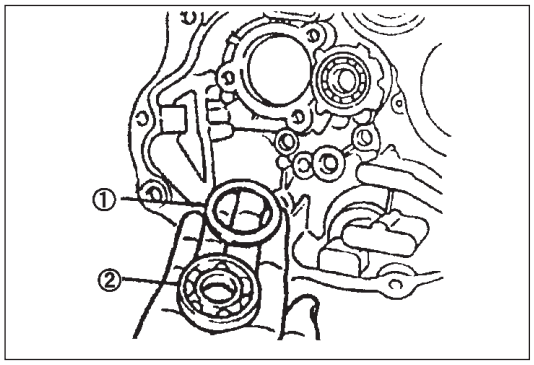
3) The following is the prepared washer thickness(mm)

1.0	1.3	1.7
1.1	1.5	

Washer selection table

range of washer thickness	selected washer
1.8 ¡ÜD ¡Ü1.9	1.7
1.9 £¼D ¡Ü2.0	2.0
2.0 £¼D ¡Ü2.1	2.1
2.1 £¼D ¡Ü2.2	2.2
2.2 £¼D ¡Ü2.3	2.3
2.3 £¼D ¡Ü2.4	2.4
2.4 £¼D ¡Ü2.5	2.5
2.5 £¼D ¡Ü2.6	2.6
2.6 £¼D ¡Ü2.7	2.7
2.7 £¼D ¡Ü2.8	2.8
2.8 £¼D ¡Ü2.9	2.9
2.9 £¼D ¡Ü3.0	3.0

The washer thickness is 2.42mm by calculation. So the washer thickness should select 2.5mm according to above table.



6. Installtion of adjusting washer

1) Washer A

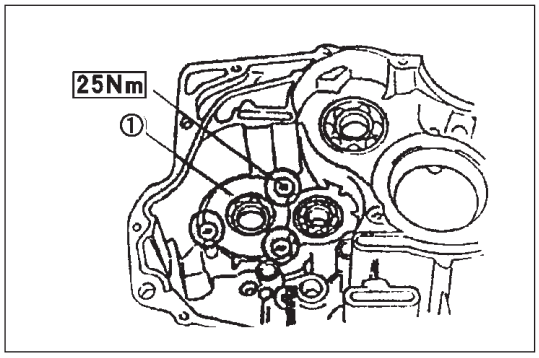
Mount

¡¤Washer A ¢Ù

¡¤Bearing ¢Ú

Caution

This step is carried out before assembly with closing case.

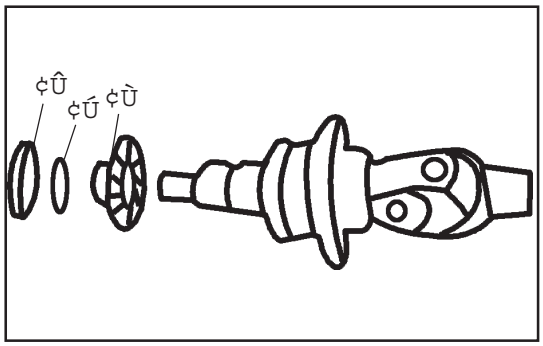


Mount:

¡¤Clamp plate ¢Ù

Caution

This step is carried out before assembly with case.



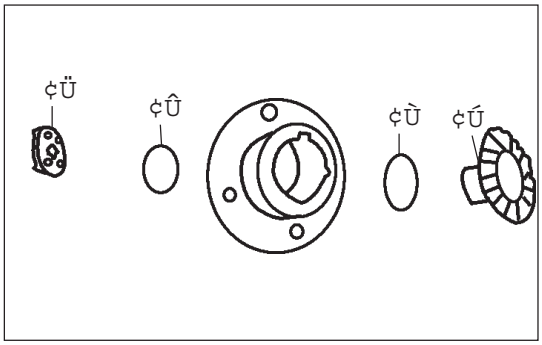
2) Washer B

Mount:

¡¤Forward gear ¢Ù

¡¤Washer B ¢Ú

¡¤Bearing ¢Û



3) Washer C

Mount:

¡¤Washer ¢Ù

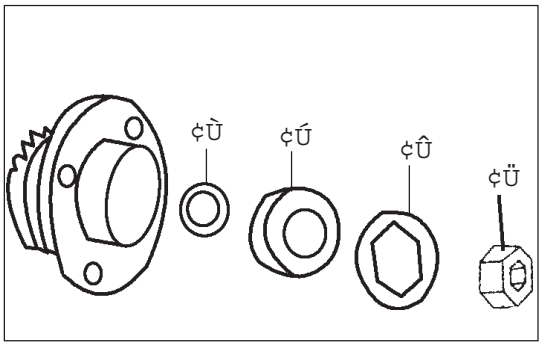
¡¤Reverse gear ¢Ú

¡¤Special-shaped left-handed nut ¢Û

Caution

¡¤The special-shaped left-handed nut left-handed thread, so tighten it in counterclock wise direction.

¡¤Use special-shaped nut wrench ¢Ü.



4) Washer D

Mount:

¡¤Washer ¢Ù

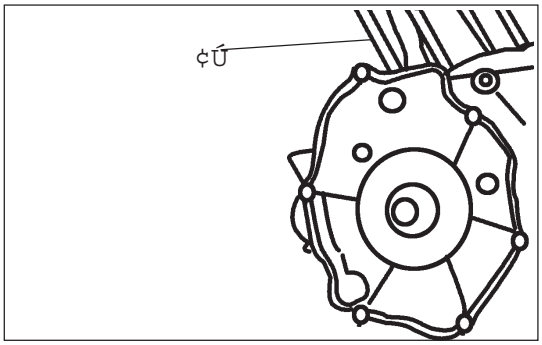
¡¤Bearing ¢Ú

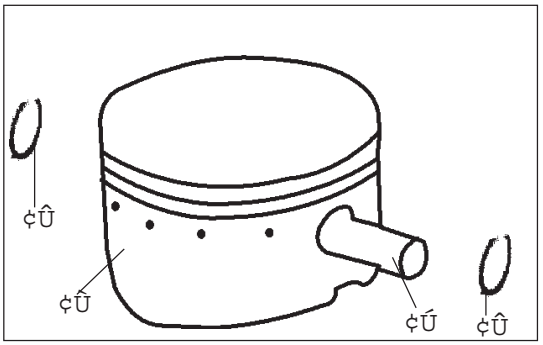
¡¤Bushing ¢Û

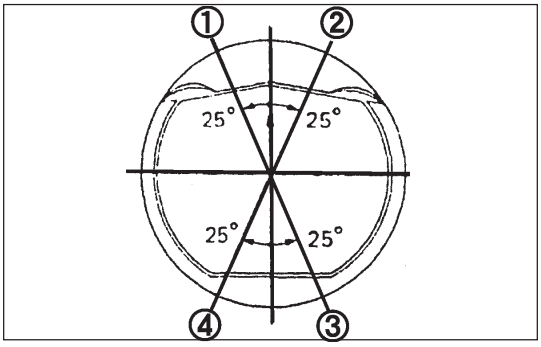
Caution

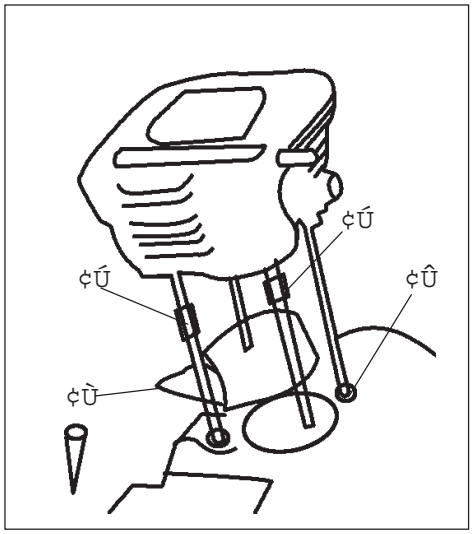
¡¤Use inner allen bushing wrench ¢Ü.

¡¤Coat 518 anaerobic sealing gum or equal substitute on outer end surface of bearing ¢Ú(which side is near to washer).









(V) Assembly of cylinder head

1. Mount:

¡¤Double end bolt ¢Ù

¡¤Mount:

¡¤Piston ¢Ù

¡¤Piston pin ¢Ú

¡¤Circlip ¢Û

Caution

¡¤Arrow ¢Üon the piston must point to the forward of engine

¡¤Before mounting the piston pin, cover Crankcase hole with cleaning towel or clothes for avoiding circlip and other small parts dropping into crankcase.

¡¤Be sure to use new circlip.

3. Apply oil:

¡¤Apply4-stroke machine oil on the piston pin, piston ring groove and piston edge.

4. Installation of piston ring

Assembly the piston ring split clearance staggeringly according to showing figure.

¢ÙTop ring

¢ÚOil ring(lower ring

¢ÛThe second ring

¢ÜOil ring(up ring)

5. Install:

¡¤Cylinder body washer ¢Ù

¡¤Locating pin ¢Ú

¡¤O-ring ¢Û

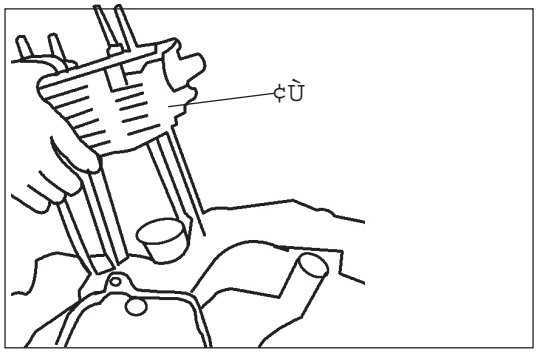
Caution

Be sure to use new sealing washer and o-ring

Caution

¡¤Be sure to check the standard of manufacture and engraved figure on the ring. The marking surface is toward to piston top.

¡¤Before mounting cylinder, apply a layer of 4-stroke engine oil on piston ring.



6. Mount:

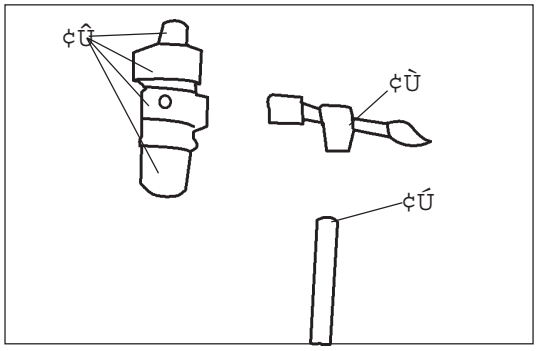
¡¤Cylinder ¢Ù

¡¤Tighten bolt (cylinder) temporally

Caution

¡¤When pressing the piston ring with one hand, assembly the cylinder with another one.

¡¤The timing chain should through the bending locking end ¢Úof chain chamber.

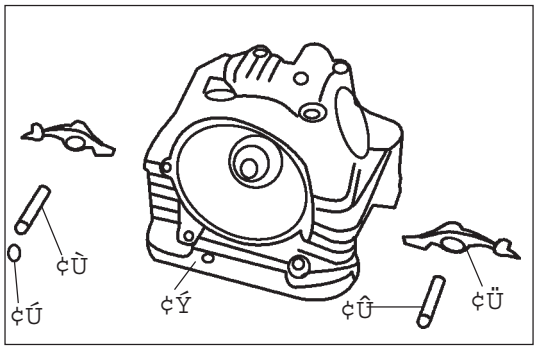


7. Lubricate:

¡¤Valve rocker ¢Ù

¡¤Rocker shaft ¢Ú

¡¤Lubrication oil: SAE 10W30 machine oil



8. Install

¡¤Valve rocker

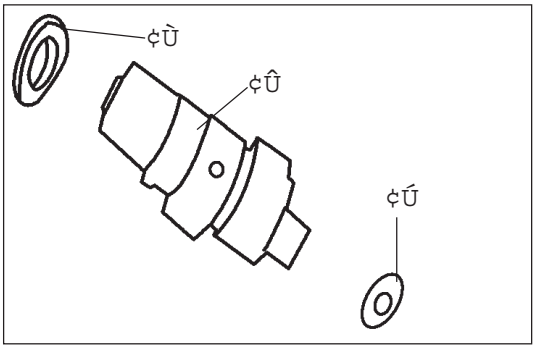
¡¤Rocker shaft

Warning

¡¤Thread hole on the rocke shaft is toward out.

¡¤Mount short rocker shaft ¢Ù(With O-ring¢Û), at the side of outlet and the long rocker shaft ¢Û(with slot¢Üat the side of inlet.)

¡¤The solt ¢Üdirection, need to be adjusted when mounting inlet rocker shaft, to make the slot align with hole of cylinder cover bolt¢Ý

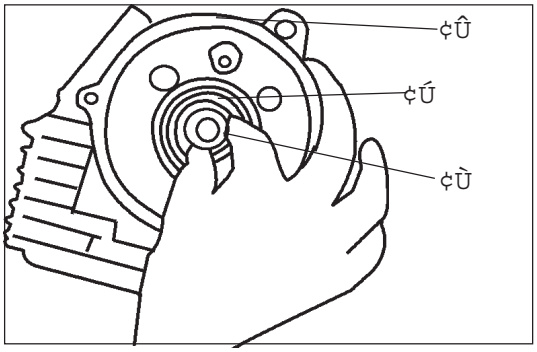


10. Mount:

¡¤Valve cam ¢Ù

Caution

The driving pin ¢Úon the end of valve cam must align to the timing mark ¢Ûon the cylinder cover.



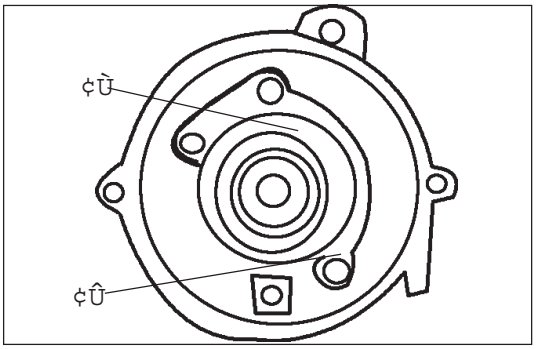
9. Mount:

¡¤Bearing ¢Ù(to valve cam)

¡¤Bearing ¢Ú(to valve cam)

Caution

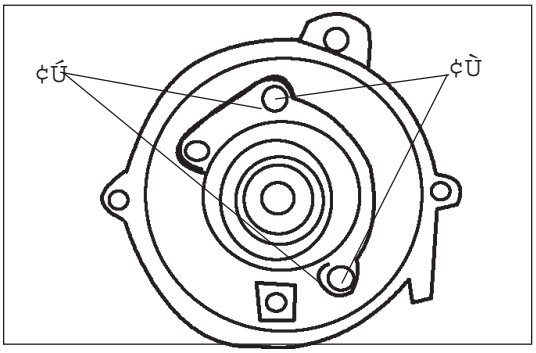
The bearing ¢Ùwith oil sealing is toward out when assembling it, and the bearing ¢Úwith dust cap is toward inside when assembling it.



11. Mount:

¡¤Clamp plate ¢Ù(Bearing)

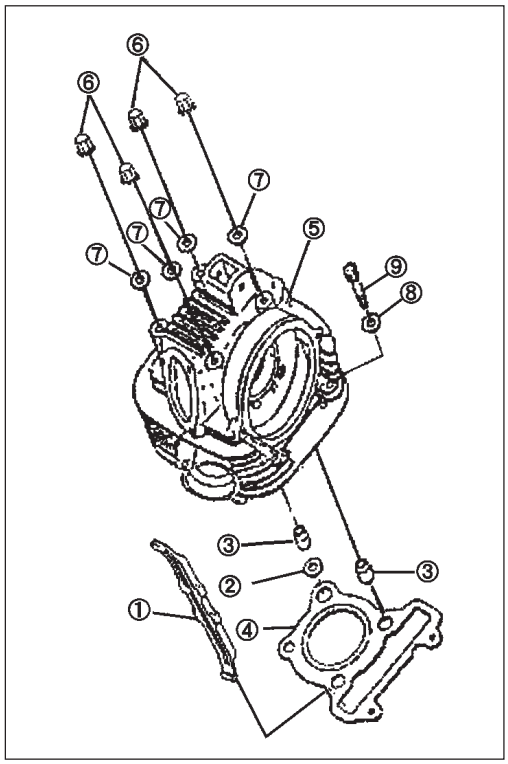
¡¤Locking plate ¢Ú(new)



12. Fasten

¡¤Bolt ¢Ù

13. Bend locking plate end¢Ú



14. Mount:

¡¤Lower guide plate ¢Ù

¡¤Oil sealing ¢Ú

¡¤Locating pin ¢Û

¡¤Cylinder cover washer assy ¢Ü

¡¤Cylinder head ¢Ý

¡¤Washer ¢Þ

¡¤Cylinder head nut ¢ß

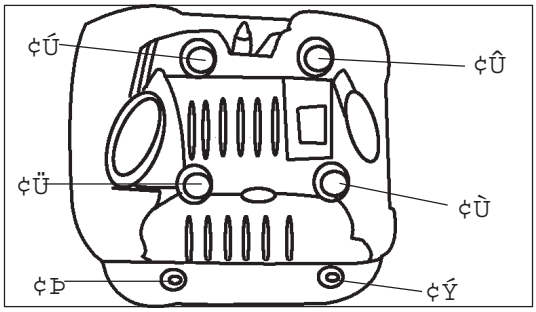
¡¤Washer ¢à

¡¤Screw ¢á

Caution

¡¤Apply 4-stroke engine oil on the washer ¢ß

15. Fasten the bolt and nut according to the order in the figure.

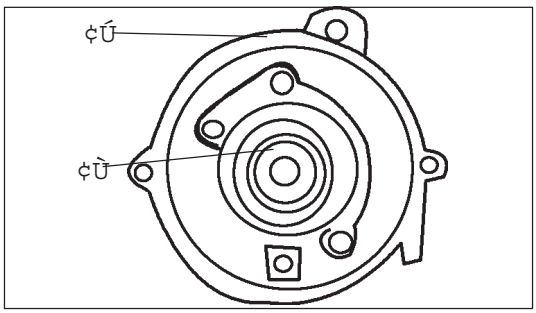


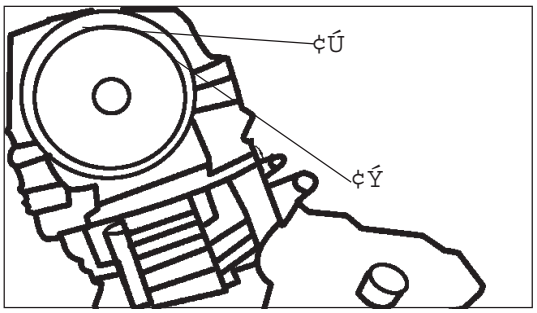
16. Mount:

¡¤Timing spocket pulley

¡¤Mounting step of timing spocket pulley:

¡¤Turn the cam shaft to make the cam pin ¢Ù is ¡¤correspondance with the matching mark ¢Úof ¡¤cylinder head.



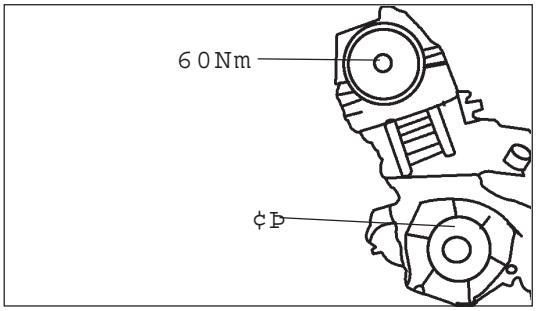


¡¤Turn the crank until the mark TDC ¢Ûis correspondance with the mark on the crankcase cover ¢Ü.

¡¤Mount the timing chain to the timing spocket pulley.

¡¤Mount the timing spocket pulley to the cam shaft for ensuring the mark of timing spocket pulley ¢Ýis correspondance with the mark ¢Ú on the cylinder head, then fasten the spocket pulley bolt with hand.

(Be ensure the tension of the timing chain at the outlet when mounting the timing spocket pulley)

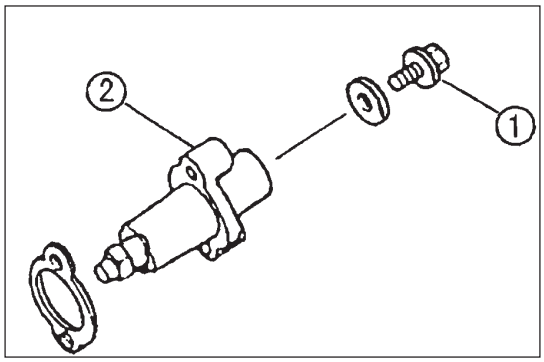


¡¤Insert the special tooling into the tension hole of timing chain and pull the tensioner timing chain toward inside.

¡¤The matching mark ¢Ýof timing spocket is sure to correspond to the matching mark¢Úof cylinder head when pulling the timing chain tensioner.

¡¤Change the matching position between spocket pulley and chain if the marks is not aligned.

¡¤After the marks is aligned, fasten the bolt of timing sprocket.



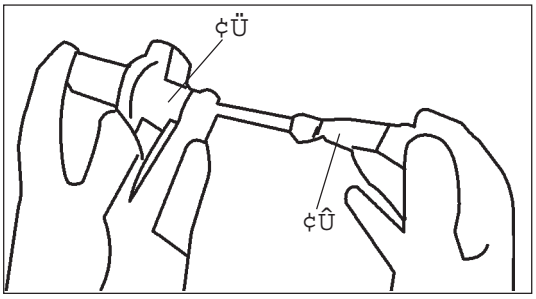
Caution

Fix the starting ratchet ¢ßand tighten the bolt of timing spocket.

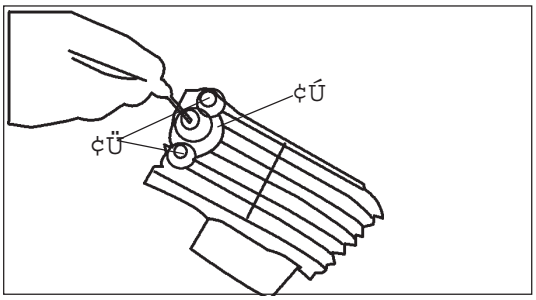
17. Mount:
Tensioner of timing chain

Mounting steps:

¡¤Take off bolt ¢Ùfrom the tensioner of timing chain.



¡¤Insert the small screwdriver ¢Ûinto the groove of tension rod, and turn the screwdriver by clockwise, at same time to press tension rod until the screwdriver can't be turned.



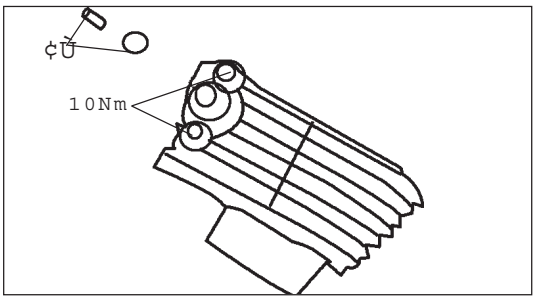
¡¤Hold the screwdriver at this position, and mount the tensioner assy ¢Ú(with washer) on the cylinder, then turn the locking bolt ¢Üof tensioner sub-assembly.

¡¤Take off the screw drive from the tensioner, and then tighten the locking bolt of tensioner assy.

¡¤Mount tension bolt ¢Ùwith washer.

Caution

Always use new washer.



18. Adjust:

¡¤The valve clearance

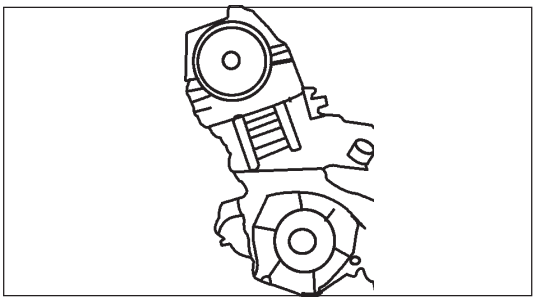
There is a valve clearance between two rocker when the mark ¢Ûof timing spocket is align with the mark ¢Üof cylinder cover.

¡¤Inlet valve clearance(cool):

0.05-0.09mm

¡¤Outlet clearance(cool):

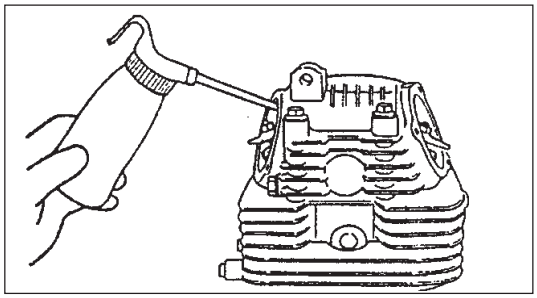
0.11-0.15mm

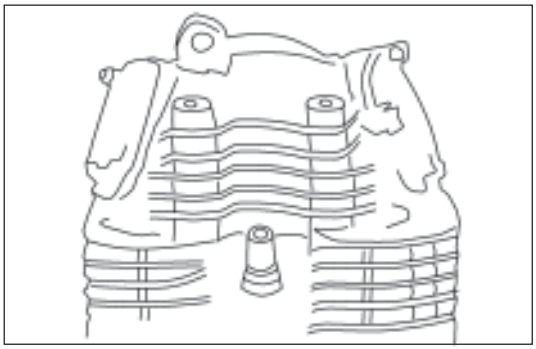


19. Apply 4-stroke engine oil

(On the up side of cam shaft)

¡¤Oil quantity is 0.05L





20. Mount:

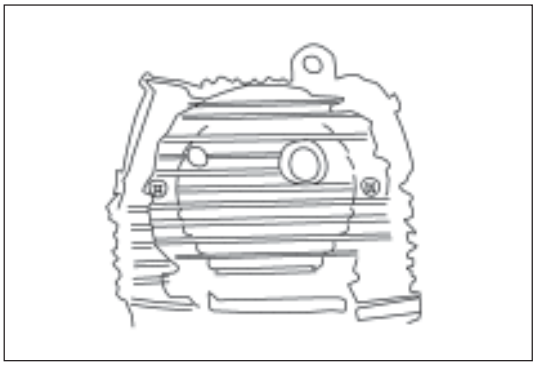
¡¤Valve cover ¢Ù(mount o-ring in the sealing groove of throttle cover first)

¡¤Valve cover ¢Ú(mount o-ring in the sealing groove of throttle cover first)

¡¤Spark plug ¢Û

Caution

Check the o-ring, if it is deformed or damaged, replace it.

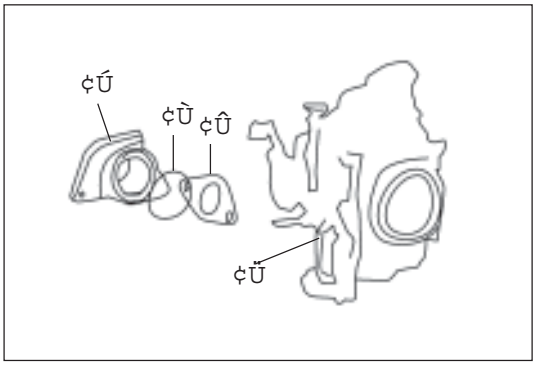


21. Mount:

¡¤Spocket chamber cover ¢Ù(mount o-ring in the sealing groove of spocket chamber cover first).

Caution

Check the o-ring, if it is deformed or damaged, replace it.



22. Mount:

¡¤O-ring ¢Ù

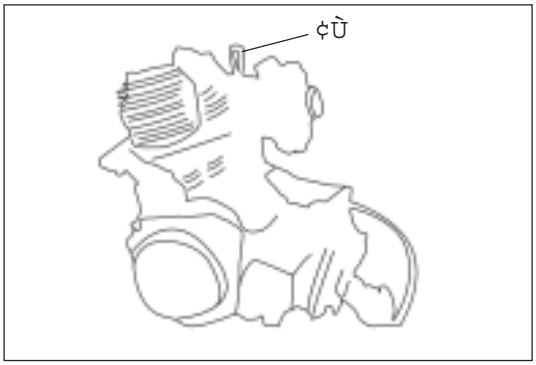
¡¤Carburetor seat ¢Ú

¡¤Washer ¢Û

¡¤Carburetor ¢Ü(mount o-ring in sealing groove first)

Caution

Check all o-ring . If it is damaged, replace it.



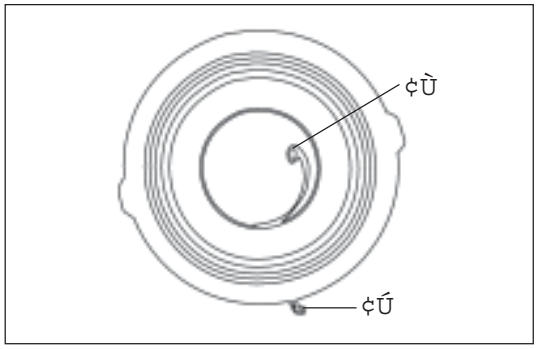
23. Mount:

¡¤Carburetor seat and carburetor (on cylinder cover)

¡¤Wire clamp ¢Ù

Caution

The carburetor seat and the o-ring in the sealing groove of cylinder cover connecting surface can’ t be forgotten to mount.



(VI) Manual starting mechanism and others

1. Mount:

¡¤Coil spring backboard assy

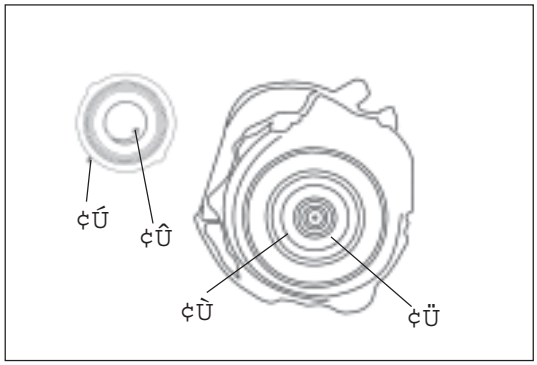
Caution

Hang the coil spring hook hanger ¢Úinto the split of spring backboard, and wind the coil spring in counterclockwise.

2. Install:

¡¤Washer ¢Ù

¡¤Coil spring backboard assy ¢Ú



Caution

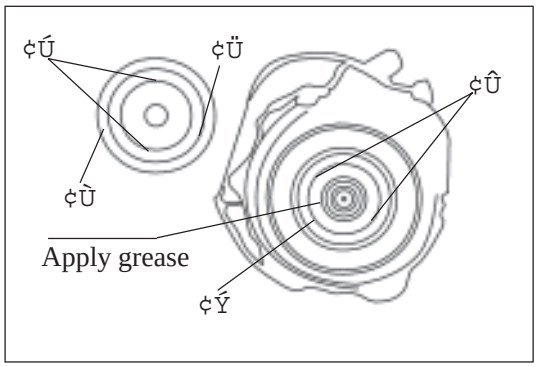
End of the coil spring is hung the inner race of left side-cover coil spring

3. Wind the rope in the drive disc groove $4\frac{1}{2}$ circles by clockwise.

4. Lubricate:

¡¤Coil spring backboard assy

¡¤Drive disc

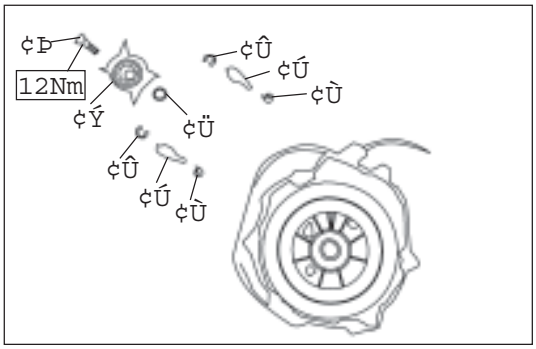


5. Mount:

¡¤Drive disc ¢Ù

Caution

The projection ¢Ûneed to be mounted into two hole groove ¢Úand the coil spring hook hanger ¢Ýalso need to be mounted into the hole groove ¢Ü.



6. Mount:

¡¤Torsion spring (starting ratchet pawl)¢Ù

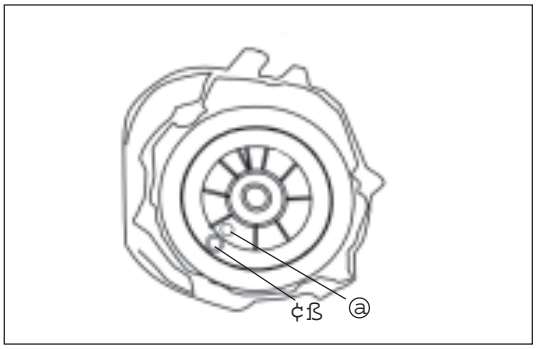
¡¤Starting ratchet pawl ¢Ú

¡¤Hog ring ¢Û

¡¤Compress spring ¢Ü

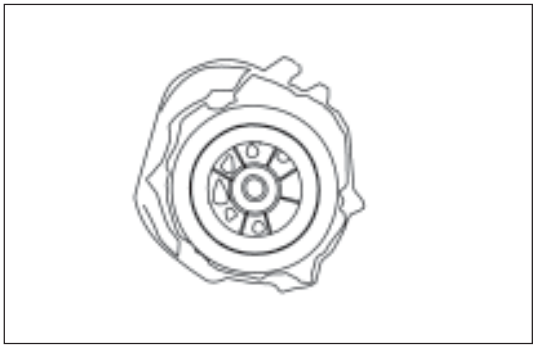
¡¤Guide plate ¢Ý

¡¤Screw pin ¢Þ

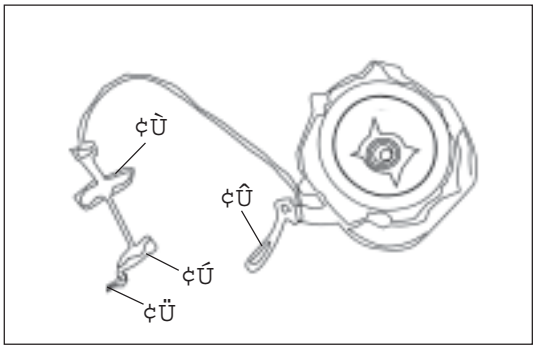


Caution

When mounting torsion spring (starting ratchet pawl), make the end ¢ßof torsion spring align to groove on the drive disc.



7. Turn the drive disc 3 circles by clockwise, and pre-tighten the coil spring.



8. Mount:

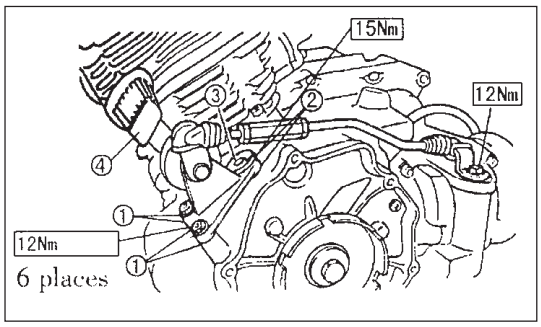
¡¤Starting lever ¢Ù

¡¤Cover ¢Ú

Caution

Make the rope accross the hole of left side, and knit it in order to the rope is not pulled into left side cover.

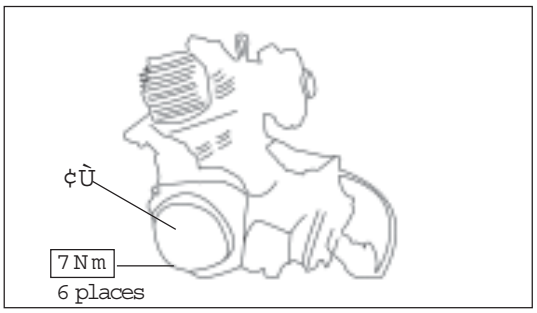
¡¤After kniting ¢Ü and untie it ¢Û



9. Mount:
¡¤Washer ¢Ù
¡¤Washer ¢Ú
¡¤Reverse lever system ¢Ü

Caution

Coat sealing gum on the bolt ¢Û



10. Mount:
¡¤Manual starting system ¢Ù

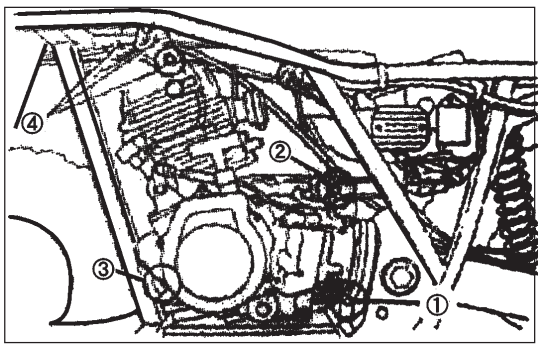
(VII) Mount the engine on the finished vehicle
Its steps is opposed to steps of “Engine Disassembly”

Caution

Support motorcycle firmly for avoiding turning over.

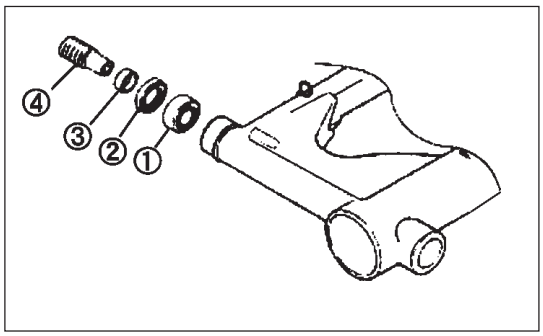
1. Mount:
¡¤Engine
Mount the engine from right side of frame.

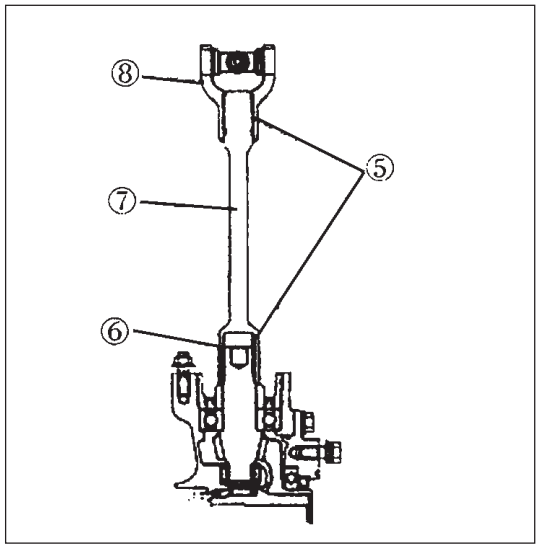
2. Mount:
¡¤Bolt ¢Ù(Installation position of engine-rear lower)
¡¤Bolt ¢Ú(Installation position of engine-rear upper)
¡¤Bolt¢Û(Installation position of engine-front)
¡¤Bolt ¢Ü(Installation position of engine-top)

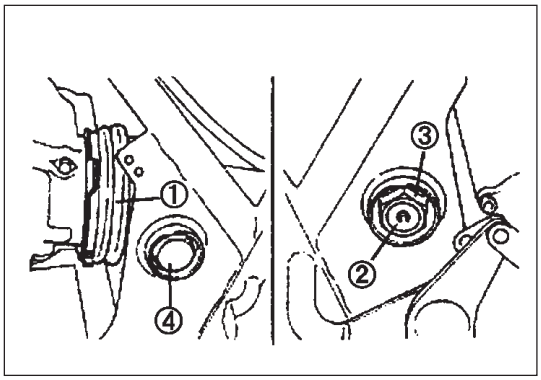


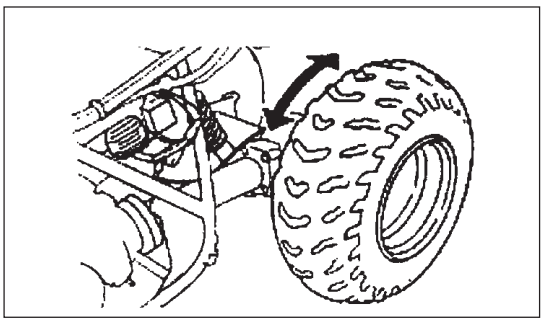
Caution

¡¤Mount all the installing bolts from right side of motorcycle
¡¤Turn the nut and bolt temporily, but don’ t fasten them at this time.









3. Mount:

¡¤Drive assy of rear wheel and rear wheel fork

Assembly steps:

1) Lubricate following parts before mounting the rear wheel fork

¡¤Bearing ¢Ù

¡¤Oil sealing ¢Ú

¡¤Bushing ¢Û

¡¤Coupling bolt of rear arm ¢Ü

¡¤Spling of drive shaft ¢Ý

Spline of main drive gear ¢Þ

Lubrication oil:

Lithium base lubrication oil

2) Mount the drive shaft ¢ßon the spline ¢Þof main drive gear.

3) Pull rear wheel fork forward, and mount drive shaft ¢ßon the rear joint of direction knot ¢à

4. Connect:

Rubber bushing etc ¢Ù

5. Mount:

¡¤Coupling bolt ¢Úof rear arm

¡¤Rear arm nut ¢Û

¡¤Coupling bolt ¢Üof rear arm

Caution

Turn the rear arm shaft bolt and rear arm shaft nut temporaly, and don't fasten them at this time.

6. Check:

¡¤Operation of drive shaft

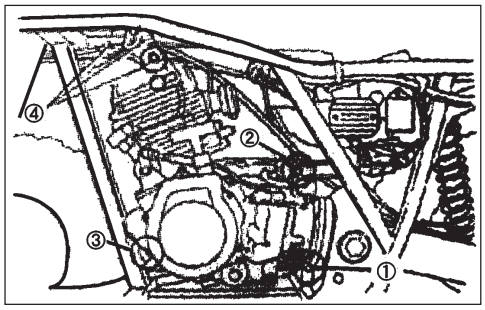
Checking steps:

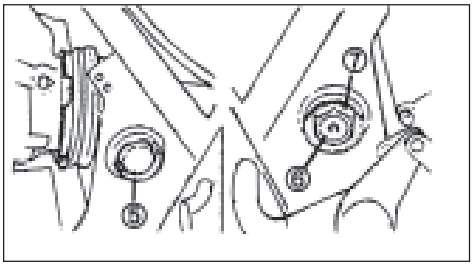
¡¤Hold the front wheel and put the proper bracket on the fram for lifting rear wheel

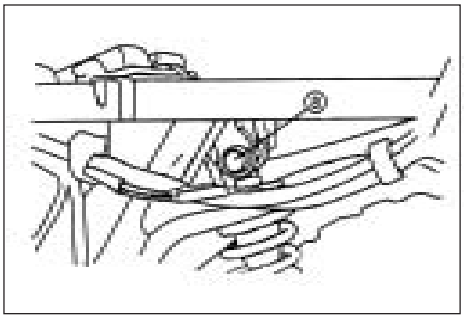
¡¤Front and rear turning rear wheel

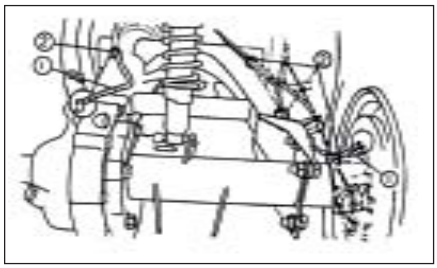
¡¤Front and rear turning rear wheel

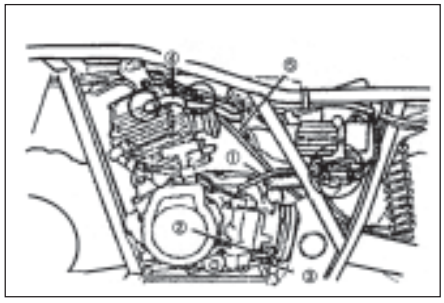
Check the operation of driving shaft. If the operation is not good, check the installation of drive shaft again.







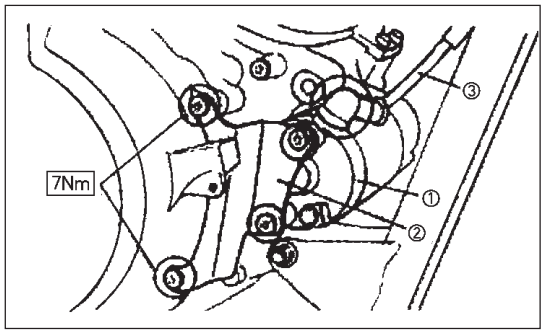




7. Fasten:
¡¤Bolt¢Ù(Installation position of engine-rear lower)
¡¤Bolt ¢Ú(Installation position of engine-rear lower)
¡¤Bolt¢Û(Installation position of engine-front)
¡¤Bolt ¢Ü(Installation position of engine-top)
¡¤Coupling bolt of rear arm ¢Ý(Rear arm shaft-right)
¡¤Coupling bolt of rear arm ¢Þ(Rear arm shaft-ringt)
¡¤Rear arm nut ¢ß
Bolt (Installation position of engine-rear lower)
33Nm(3.3m.bg.24ft.lb)
Bolt(Installation position of engine-rear lower)
33Nm(3.3m.bg.24ft.lb)
Bolt(Installation position of engine-front)
48Nm(4.8m.bg.35ft.lb)
Bolt(Installation position of engine-top)
33Nm(3.3m.bg.24ft.lb)
Coupling bolt of rear arm(rear arm shaft-left)
130Nm(13m.bg.4.3ft.lb)
Coupling bolt of rear arm(rear arm shaft-ring)
0.6Nm(0.6m.bg.94ft.lb)
Rear arm nut:
130Nm(13m.bg.94ft.lb)
Bolt(rear shock absorber-top):
50Nm(5.0km.bg.36ft.lb)

8. Mount:
Dust cap ¢áof rear arm shaft

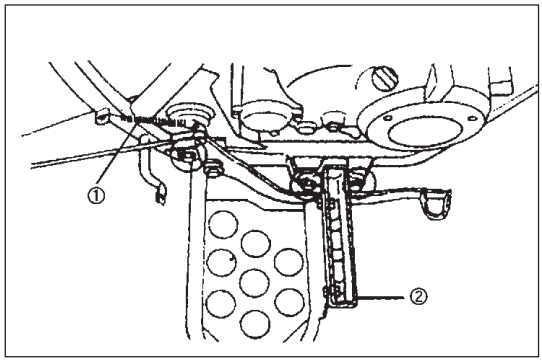
9. Connect:
¡¤Breather tube ¢Ù(rear drive)
Refer to “Diagram of vehicle” in section 6 of chapter
10. Connect:
¡¤Spark plug terminal ¢Ù
¡¤CDI magneto terminal ¢Ú
¡¤“Reverse” switch terminal ¢Û
¡¤“Neutral” switch terminal
¡¤Breather tuke ¢Ü(rankcase)
¡¤Brake cable ¢Ý
Refer to “Diagram of vehicle” in section 6 of chapter15-84



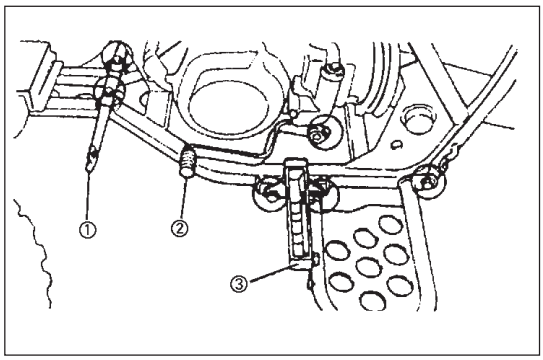
11. Mount:
¡ ¤Starting motor ¢Ù
¡ ¤Coupling plate ¢Úof starting motor
¡ ¤Wire of starting motor ¢Û

Caution

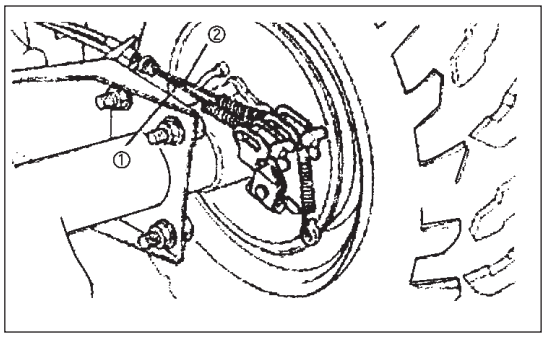
Lubricate o-ring before mounting the starting motor.



12. Mount:
¡ ¤Spring ¢Ù
¡ ¤Foot rest ¢Ú(right)
Bolt(foot rest)
65Nm(6.5m.47ft.lb)
Bolt(shifting pedal):
10Nm(1.m.7.2ft.lb)
Bolt(foot rest)
65Nm(6.5m.47ft.lb)
Bolt(foot rest)
30Nm(3.0m.22ft.lb)

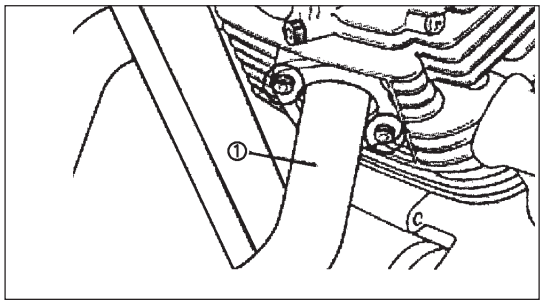


13. Mount:
¡ ¤Bracing ¢Ùof front fender
¡ ¤Shifting pedal ¢Ú
¡ ¤Foot rest ¢Û(left)



14. Connect
¡ ¤Rear brake cable ¢Ù(rear)
¡ ¤Rear brake rod ¢Ú

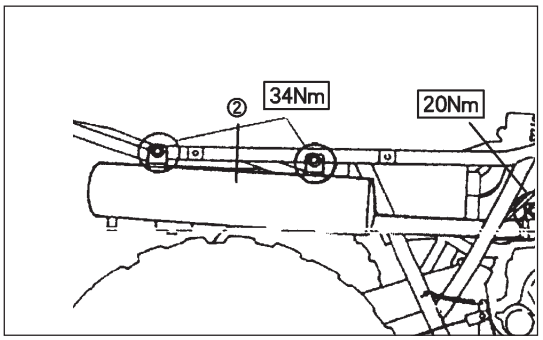
15. Adjust:
¡ ¤Rear brake
Refer to “Adjustment of rear brake lever and brake pedal” in chapter 3



16. Mount:
¡¤Exhaust pipe ¢Ù
¡¤Silencer ¢Ú

17. Fill oil :
¡¤Crankcase
Total:2.2L
Refer to relevant part in section 5 of chapter 2.

18. Adjust:
¡¤Free clearance of plunger(clutch)



19. Adjust:
¡¤Position of drive selection lever
Refer to relevant part in section 5 of chapter 2

20. Adjust:
¡¤Idle speed
Refer to relevant part in section 5 of chapter 2 Idle speed:1400-1500r/min

21. Adjust:
¡¤Idle stroke of throttle cable
Refer to relevant part in section 5 of chapter 2 Idle stroke of throttle cable3-5mm

ChapterVI Vehicle Ordinary Trouble and Judgment

Trouble

Caution:

The following trouble, not including all possible troubles, is a help for trouble guide .Please refer to relevent contents for the inspection, adjustment and replacement of parts.

(I)Starting trouble/difficulty

1`Fuel system

(1)Fuel tank

.No oil

.Fuel filter is clogged

.Fuel filter net is clogged

.Breather tube is clogged

.Fuel is deteriorated or polluted

(2)Fuel cock

.Inlet tube is clogged

.Fuel cock is not be opened

(3)Carburetor

.Fuel is deteriorated or polluted

.Starting nozzle is clogged

.Air tube is clogged

.Float is distorted

.Needle valve is worn

.Improper valve sealing

.Improper installation of starting nozzle

.Starting nozzle is clogged

.Improper work of starting plug

(4)Air filter

.Core of air filter is clogged

2`Electric system

(1)Spark plug

.Improper spark plug clearance (standard clearance is 0.6-0.7mm)

.Terminal is worn

.Spark plug is polluted

.wrong spark plug heat value

.Inefficient spark plug cap

(2)Ignition coil

.Primary coil/secondary coil is broken or shortened

.Inefficient high voltage wire

.Ignition coil is broken

(3)CDI magneto system

.CDI is failure

.Coil is failure

.Charging coil is failure

.Woodruff key is bad

(4)Switches and wires

.Main switch is bad

.The engine is off and switch is inefficient

.Wires is broken or shortened

.Neutral switch is bad

.Starting switch is bad

.Rear brake switch is bad

(5)Starting motor

.Staring motor is bad

.Starting relay is bad

.Off power relay is bad

.Super clutch is bad

3`Cylinder

(1)Cylinder body and cylinder head

.Spark plug is loosen

.Cylinder head or cylinder body is loosen

.Cylinder head washer is damaged

.Cylinder body is worn or damaged

(2)Piston and piston ring

.Improper piston ring installation

.Piston ring is worn and out of elasticity

.Piston is damaged or crack

(3)Valve, camshaft and crank shaft

.Valve didnt closed entirdly

.Improper match between valve and valve seat

.Wrong port timing

.Valve spring is damaged

.Valve camshaft is damaged

.Crank shaft is damaged

(II)Poor idle speed performance

(1)Carburetor

.Starting plug is not close entirely

.Idle metering jet is loose

.Idle metering jet is clogged

.Idle air metering jet is clogge

.Improper idle adjustment

.Leakage of carburetor

(2) Electric system

.Spark plug is bad

.CDI is bad

.Coil is bad

.Charging coil is bad

.Ignition coil is bad

(3)Valve system

.Improper adjustment of valve clearance

.Core of air filter is clogged

(III)Poor middle and high speed performance

Refer to “starting trouble/difficulty”and poor idle speed performance section in this chapter.

(1)Carburetor

.Wrong needle valve position

.Main jet is clogged or loosened

.Fuel is deteriorated or polluted

.Wrong float chamber oil level

(2)Air filter

.Core of air filter is clogged

(IV)Shifting trouble

1.Shifting difficulty

Refer to “slippig of clutch”and “ablation of clutch”in this chapter

2.Shifting pedle is clogged

(1)Shifting shaft groups

.Shifting shaft is bend

.Shifting lever groups is damaged

(2)Shifting cam, shifting fork

.There is foriegn matter in shifting camshaft recess

.Shifting fork is clogged

.Shifting fork shaft is bend

(3)Driving system

.Driving gear is clogged

.Foreign matter is clogged

.Incorrect driving system installation

3.Shift is out of gear

(1)Shifting shaft groups

.Improper adjustment of limited lever postion

.Limited lever can’t back

(2)Fork

.Fork is worn

(3)Shifting cam

.Recess of shifting cam is worn

(4) Driving system
¡¤Claw of gear end is worn

(V) Clutch slips
(1) Clutch
¡¤Improper adjustment of clamp plate release rod clearance of clutch
¡¤Clutch spring is loosen (primary clutch and / secondary clutch)
¡¤Clutch spring is fatigue (primary clutch and/ secondary clutch)
¡¤Friction disc is worn
¡¤Clamp plate is worn or deformed
¡¤Main clutch shoe lining is worn

(2)Engine oil
¡¤Low oil level
¡¤Poor quality(viscosity is low)
¡¤Deteriorated oil

(VI) clutch is locked
¡¤(1)Clutch
¡¤Clutch is out of control or the clearance is too big
¡¤Improper match between release lever and release rod
¡¤Deformed clutch clamp plate
¡¤Friction disc is deformed
¡¤Clutch hub is broken

(2)Engine oil
¡¤High oil level
¡¤Poor oil quality(viscosityis high)
¡¤Deteriorated oil

(VII) Engine is overheat
(1)Ignition system
¡¤Improper spark plug clearance
¡¤Wrong spark plug heating value
¡¤CDI failure

(2) Fuel system
¡¤Main jet of carburetor is wrong
¡¤Improper oil level
¡¤Core of air filter is clogged
(3) Cylinder system
¡¤Serious carbon deposition

(4)Engine oil
¡¤Improper oil level
¡¤Improper oil toughness
¡¤Poor oil quality

(5)Brake
¡¤Brake is stagnant

(VIII) Brake trouble
Troubles: Poor brake efficient
¡¤Brake shoe lining is worn
¡¤Serious wear of brake shoe
¡¤Brake shoe oil is too much
¡¤Improper adjustment of brake clearance
¡¤Improper brake arm position
¡¤Returing spring is fatigue and damaged
¡¤Brake cable is broken

(IX) Shock absorber failure/improper operation
1. Shock absorber failure:
¡¤Damping rod is bent or damaged
¡¤Bad oil sealing lip
¡¤Spring of shock absorber is fatigue

2. Improper operation
(1) Handle bar
¡¤Improper installation or handlebar is bent

(2) Steering system
¡¤Wrong toe-in
¡¤Steering pillar is bend

¡¤Improper installation of steering pillar bearings
¡¤Holding seat of steering pillar or sealing ring is damaged
¡¤Rod is bent
¡¤Spherical connection is bent

(3) Wheel tyre
¡¤Uneven pressure on two sides of tyre
¡¤wrong tyre pressure
¡¤uneven tyre wear

(4) Front/Rear tyre
¡¤deformed run
¡¤Loosen bearing
¡¤Front wheel axle is bent or loosen
¡¤Radial run out of front/rear wheel is too big

(5) Frame
¡¤Bend
¡¤Damaged frame

(6)Rear wheel fork
Bearing or bushing is worn
Rear wheel fork is bent or damaged

(X) Lighting system
1. Head light is out of work
¡¤buld is trouble
¡¤Too big load
¡¤Charging difficulty(Lighting coilor rectifier is failure)
¡¤Wrong connection of wire
¡¤Wrong connection of ground
¡¤Poor connection(Main switch or lighting switch)
¡¤use-life of bult is end

2. Bulb is off
¡¤Bulb is out of specification
¡¤Battery fails
¡¤Rectifier fails
¡¤Wrong connection of ground
¡¤Main switch or lighting switch fail
¡¤Use-life of bulb is end

SUPPLEMENTARY SERVICE MANUAL

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